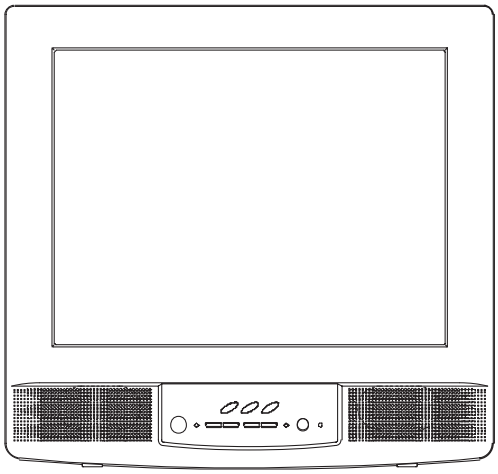
SYLVANIA Symphonic

# SERVICE MANUAL

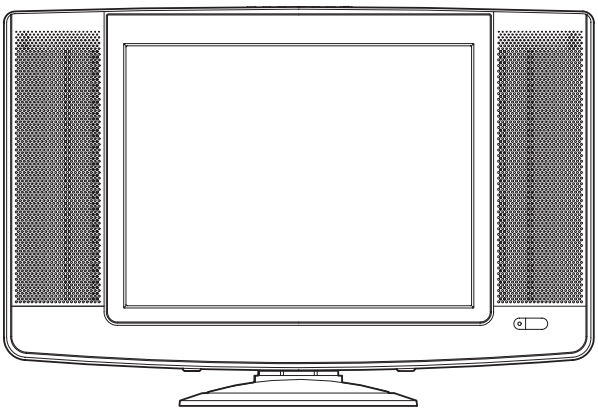
## 15″ COLOR LCD TELEVISION

## 6615LF4/ STL1505



## 15″ COLOR LCD TELEVISION

## 6615LF



# IMPORTANT SAFETY NOTICE

**Proper service and repair is important to the safe, reliable operation of all Funai Equipment. The service procedures recommended by Funai and described in this service manual are effective methods of performing service operations. Some of these service special tools should be used when and as recommended.**

**It is important to note that this service manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Funai could not possibly know, evaluate and advice the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Funai has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Funai must first use all precautions thoroughly so that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.**

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**The LCD panel is manufactured to provide many years of useful life. Occasionally a few non active pixels may appear as a tiny spec of color. This is not to be considered a defect in the LCD screen.**

# SPECIFICATIONS

## < TUNER >

ANT. Input ---------- 75 ohm Unbal., F type
Reference Level---------- 20 Vp-p (LCD Green Cathode)
Test Input Signal ---------- 400 Hz 30% modulation

| Description | Condition | Unit | Nominal | Limit |
|---|---|---|---|---|
| 1. Intermediate Freq. | Picture<br>Sound | MHz<br>MHz | 45.75<br>41.25 | ---<br>--- |
| 2. Color Killer Sens. | CH-2<br>CH-10<br>CH-55 | dBμV<br>dBμV<br>dBμV | 15<br>15<br>15 | 20<br>20<br>20 |
| 3. AFT Pull In Range (10 mV input) | --- | MHz | ±2.1 | ±0.7 |

## < LCD PANEL >

| Description | Condition | Unit | Nominal | Limit |
|---|---|---|---|---|
| 1. Number of Pixels | Horizontal<br>Vertical | pixels<br>pixels | 640 × 3<br>480 | ---<br>--- |
| 2. Brightness | | $cd/m^2$ | 500 | --- |
| 3. Response Time | --- | msec | 16 | --- |
| 4. Support Color | --- | - | 26 mil. (6 bit) | --- |
| 5. Viewing Angle | Horizontal<br>Vertical | °<br>° | -80 to 80<br>-65 to 70 | ---<br>--- |

## < VIDEO >

| Description | Condition | Unit | Nominal | Limit |
|---|---|---|---|---|
| 1. Over Scan | Horizontal<br>Vertical | %<br>% | 7<br>7 | ---<br>--- |
| 2. Color Temperature | ---<br>x<br>y | °K | 9200<br>0.286<br>0.294 | ---<br>±0.3<br>±0.3 |
| 3. Resolution | Horizontal<br>Vertical | line<br>line | 400<br>350 | ---<br>--- |

## < AUDIO >

All items are measured across 8 Ω load at speaker output terminal with L.P.F.

| Description | Condition | Unit | Nominal | Limit |
|---|---|---|---|---|
| 1. Audio Output Power | 10% THD: Lch/Rch | W | 1.0/1.0 | 0.8/0.8 |
| 2. Audio Distortion | 500mW: Lch/Rch | % | 1.0/1.0 | 4.0/4.0 |
| 3. Audio Freq. Response | –3dB: Lch<br>–3dB: Rch | Hz<br>Hz | 50 to 12 k<br>50 to 12 k | ---<br>--- |

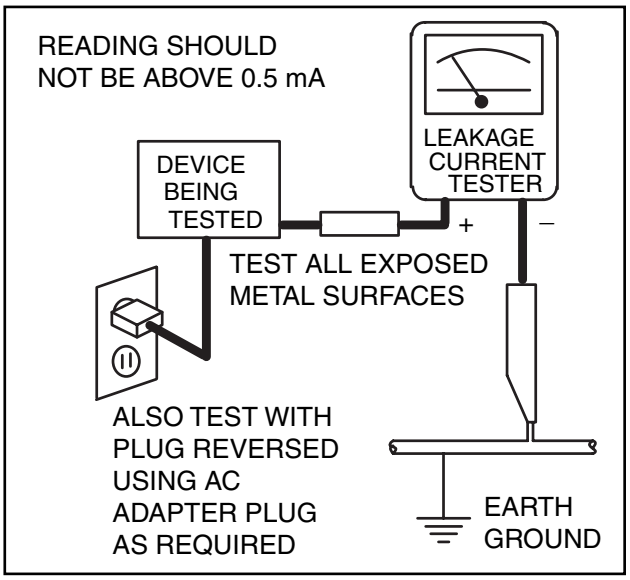
**Note:** Nominal specifications represent the design specifications. All units should be able to approximate these. Some will exceed and some may drop slightly below these specifications. Limit specifications represent the absolute worst condition that still might be considered acceptable. In no case should a unit fail to meet limit specifications.

# IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, our products are strictly inspected for recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

## Safety Precautions for LCD TV Circuit

1. **Before returning an instrument to the customer,** always make a safety check of the entire instrument, including, but not limited to, the following items:
   - **a.** Be sure that no built-in protective devices are defective and have been defeated during servicing. (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including but not limited to, nonmetallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning. Servicers who defeat safety features or fail to perform safety checks may be liable for any resulting damage.**
   - **b.** Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, (1) spacing between the Liquid Crystal Panel and the cabinet mask, (2) excessively wide cabinet ventilation slots, and (3) an improperly fitted and/or incorrectly secured cabinet back cover.
   - **c. Antenna Cold Check -** With the instrument AC plug removed from any AC source, connect an electrical jumper across the two AC plug prongs. Place the instrument AC switch in the on position. Connect one lead of an ohmmeter to the AC plug prongs tied together and touch the other ohmmeter lead in turn to each tuner antenna input exposed terminal screw and, if applicable, to the coaxial connector. If the measured resistance is less than 1.0 megohm or greater than 5.2 megohm, an abnormality exists that must be corrected before the instrument is returned to the customer. Repeat this test with the instrument AC switch in the off position.
   - **d. Leakage Current Hot Check -** With the instrument completely reassembled, plug the AC line cord directly into a 120 V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI) C101.1 Leakage Current for Appliances and Underwriters Laboratories (UL) 1410, (50.7). With the instrument AC switch first in the on position and then in the off position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle brackets, metal cabinet, screw heads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 milli-ampere. Reverse the instrument power cord plug in the outlet and repeat the test.




**ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER OR BEFORE CONNECTING THE ANTENNA OR ACCESSORIES.**

2. Read and comply with all caution and safety-related notes on or inside the receiver cabinet, on the receiver chassis, or on the Liquid Crystal Panel.

3. **Design Alteration Warning -** Do not alter or add to the mechanical or electrical design of this TV receiver. Design alterations and additions, including, but not limited to circuit modifications and the addition of items such as auxiliary audio and/or video output connections, might alter the safety characteristics of this receiver and create a hazard to the user. Any design alterations or additions will void the manufacturer's warranty and may make you, the servicer, responsible for personal injury or property damage resulting therefrom.
4. **Hot Chassis Warning -**
   - **a.** Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord and maybe safety-serviced without an isolation transformer only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC power source. To confirm that the AC power plug is inserted correctly, with an AC voltmeter, measure between the chassis and a known earth ground. If a voltage reading in excess of 1.0V is obtained, remove and reinsert the AC power plug in the opposite polarity and again measure the voltage potential between the chassis and a known earth ground.
   - **b.** Some TV receiver chassis normally have 85V AC(RMS) between chassis and earth ground regardless of the AC plug polarity. This chassis can be safety-serviced only with an isolation transformer inserted in the power line between the receiver and the AC power source, for both personnel and test equipment protection.
   - **c.** Some TV receiver chassis have a secondary ground system in addition to the main chassis ground. This secondary ground system is not isolated from the AC power line. The two ground systems are electrically separated by insulation material that must not be defeated or altered.
5. Observe original lead dress. Take extra care to assure correct lead dress in the following areas: a. near sharp edges, b. near thermally hot parts-be sure that leads and components do not touch thermally hot parts, c. the AC supply, d. high voltage, and, e. antenna wiring. Always inspect in all areas for pinched, out of place, or frayed wiring. Check AC power cord for damage.
6. Components, parts, and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts, or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.
7. **Product Safety Notice -** Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc.. Parts that have special safety characteristics are identified by a ⚠ on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The product's safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are strictly inspected to confirm they comply with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

## Precautions during Servicing

**A.** Parts identified by the ⚠ symbol are critical for safety.
Replace only with part number specified.

**B.** In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.
Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.

**C.** Use specified internal wiring. Note especially:
1) Wires covered with PVC tubing
2) Double insulated wires
3) High voltage leads

**D.** Use specified insulating materials for hazardous live parts. Note especially:
1) Insulation Tape
2) PVC tubing
3) Spacers
4) Insulators for transistors.

**E.** When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.

**F.** Observe that the wires do not contact heat producing parts (heat sinks, oxide metal film resistors, fusible resistors, etc.)

**G.** Check that replaced wires do not contact sharp edged or pointed parts.

**H.** When a power cord has been replaced, check that 5~6 kg of force in any direction will not loosen it.

**I.** Also check areas surrounding repaired locations.

**J.** Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

**K.** Crimp type wire connector
The power transformer uses crimp type connectors which connect the power cord and the primary side of the transformer. When replacing the transformer, follow these steps carefully and precisely to prevent shock hazards.
Replacement procedure
1) Remove the old connector by cutting the wires at a point close to the connector.
Important: Do not re-use a connector (discard it).
2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.
3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.
4) Use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

**L.** When connecting or disconnecting the internal connectors, first, disconnect the AC plug from the AC supply outlet.

**M.** When installing parts or assembling the cabinet parts, be sure to use the proper screws and tighten certainly.

# Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

## 1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

**Table 1: Ratings for selected area**

| AC Line Voltage | Region | Clearance Distance (d), (d') |
|---|---|---|
| 110 to 130 V | U.S.A. or Canada | ≥ 3.2 mm (0.126 inches) |

**Note:** This table is unofficial and for reference only. Be sure to confirm the precise values.

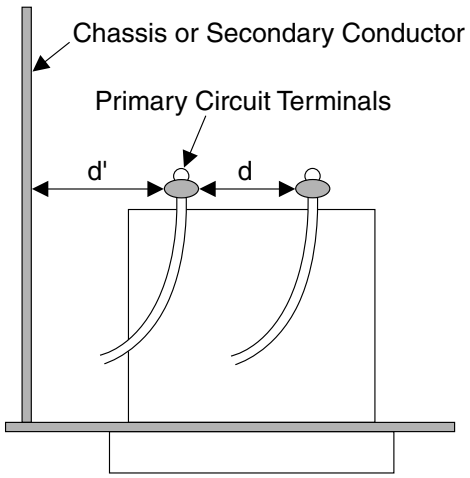



**Fig. 1**

## 2. Leakage Current Test

Confirm the specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) is lower than or equal to the specified value in the table below.

**Measuring Method: (Power ON)**

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See Fig. 2 and following table.

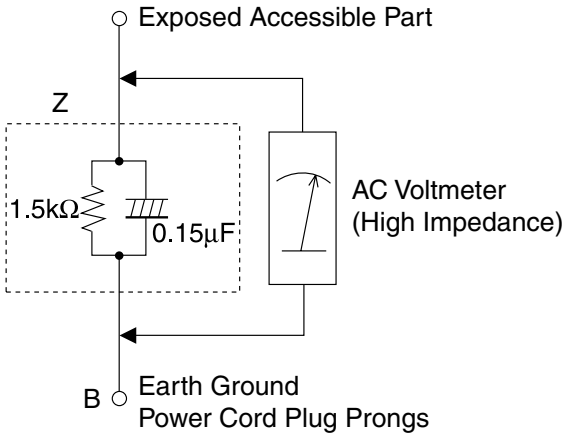



**Fig. 2**

**Table 2: Leakage current ratings for selected areas**

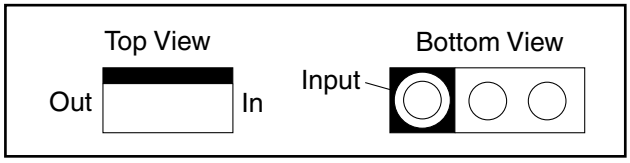
| AC Line Voltage | Region | Load Z | Leakage Current (i) | Earth Ground (B) to: |
|---|---|---|---|---|
| 110 to 130 V | U.S.A. or Canada | 0.15 μF CAP. & 1.5 kΩ RES. Connected in parallel | i ≤ 0.5 mA rms | Exposed accessible parts |

**Note:** This table is unofficial and for reference only. Be sure to confirm the precise values.

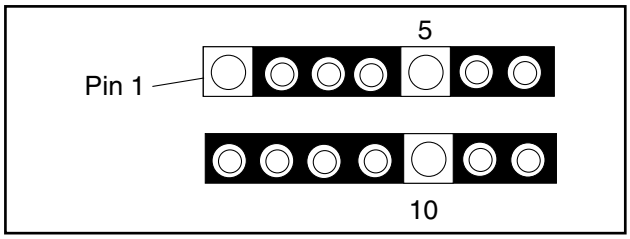
# STANDARD NOTES FOR SERVICING

## Circuit Board Indications

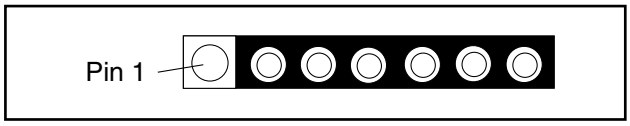
1. The output pin of the 3 pin Regulator ICs is indicated as shown.




2. For other ICs, pin 1 and every fifth pin are indicated as shown.

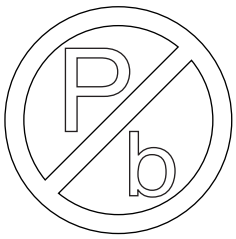



3. The 1st pin of every male connector is indicated as shown.




## Pb (Lead) Free Solder

**Pb free mark will be found on PCBs which use Pb free solder. (Refer to figure.) For PCBs with Pb free mark, be sure to use Pb free solder. For PCBs without Pb free mark, use standard solder.**




Pb free mark

## How to Remove / Install Flat Pack-IC

### 1. Removal

**With Hot-Air Flat Pack-IC Desoldering Machine:**

1. Prepare the hot-air flat pack-IC desoldering machine, then apply hot air to the Flat Pack-IC (about 5 to 6 seconds). (Fig. S-1-1)

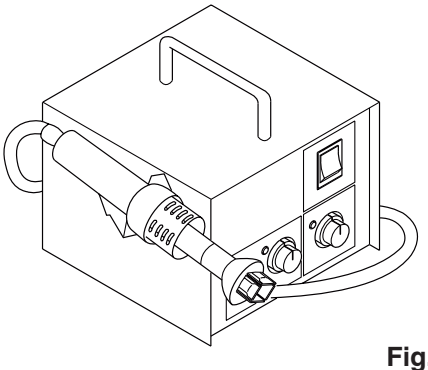


**Fig. S-1-1**

2. Remove the flat pack-IC with tweezers while applying the hot air.
3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

**CAUTION:**

1. The Flat Pack-IC shape may differ by models. Use an appropriate hot-air flat pack-IC desoldering machine, whose shape matches that of the Flat Pack-IC.
2. Do not supply hot air to the chip parts around the flat pack-IC for over 6 seconds because damage to the chip parts may occur. Put masking tape around the flat pack-IC to protect other parts from damage. (Fig. S-1-2)

3. The flat pack-IC on the CBA is affixed with glue, so be careful not to break or damage the foil of each pin or the solder lands under the IC when removing it.

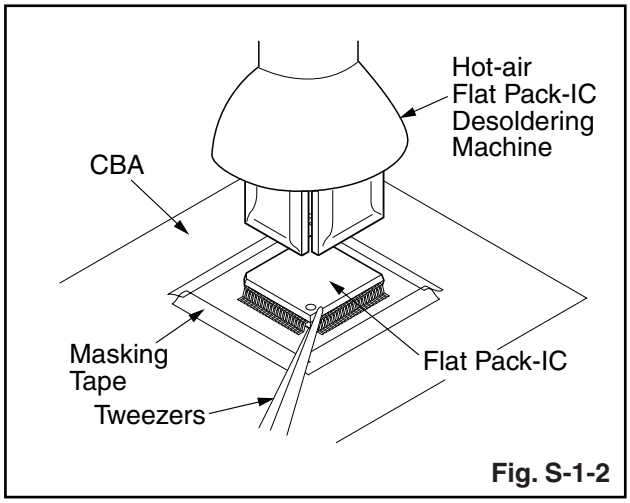



**Fig. S-1-2**

**With Soldering Iron:**

1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

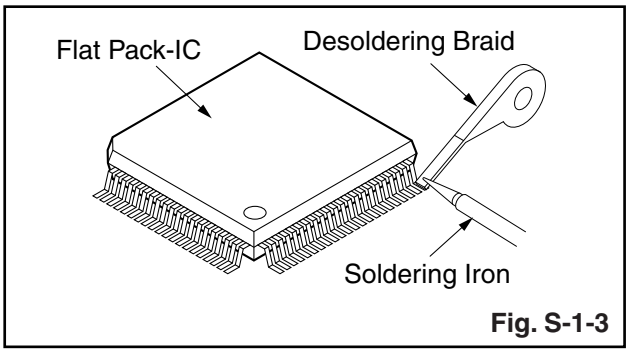



**Fig. S-1-3**

2. Lift each lead of the flat pack-IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air desoldering machine. (Fig. S-1-4)

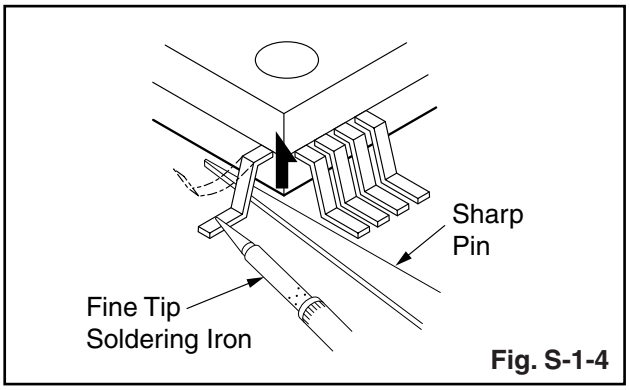



**Fig. S-1-4**

3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

**With Iron Wire:**

1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)
2. Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
3. While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the CBA contact pads as shown in Fig. S-1-5.
4. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
5. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

**Note:** When using a soldering iron, care must be taken to ensure that the flat pack-IC is not being held by glue. When the flat pack-IC is removed from the CBA, handle it gently because it may be damaged if force is applied.

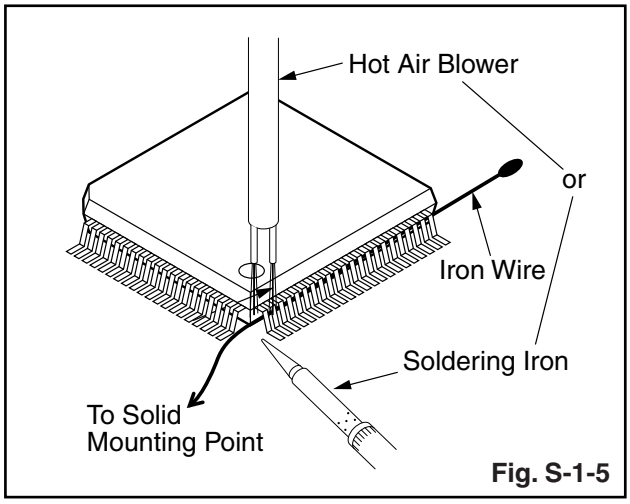



**Fig. S-1-5**

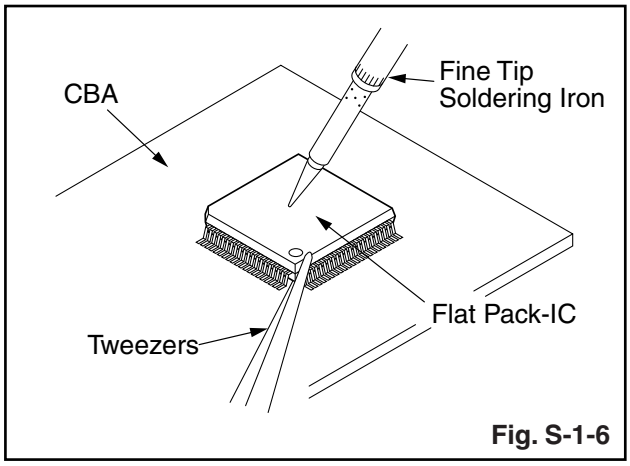



**Fig. S-1-6**

## 2. Installation

1. Using desoldering braid, remove the solder from the foil of each pin of the flat pack-IC on the CBA so you can install a replacement flat pack-IC more easily.
2. The "●" mark on the flat pack-IC indicates pin 1. (See Fig. S-1-7.) Be sure this mark matches the 1 on the PCB when positioning for installation. Then presolder the four corners of the flat pack-IC. (See Fig. S-1-8.)
3. Solder all pins of the flat pack-IC. Be sure that none of the pins have solder bridges.

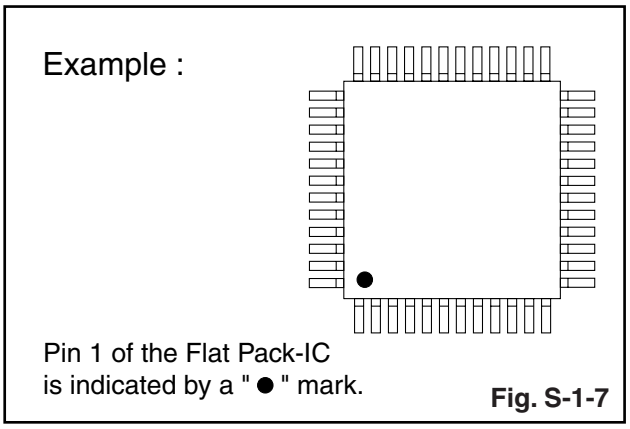



**Fig. S-1-7**

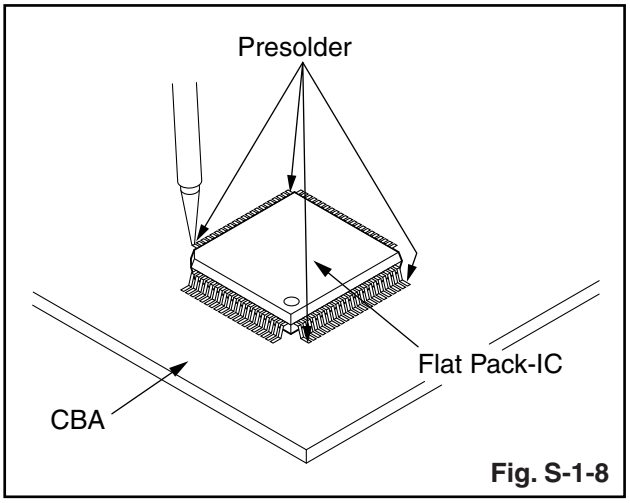



**Fig. S-1-8**

# Instructions for Handling Semi-conductors

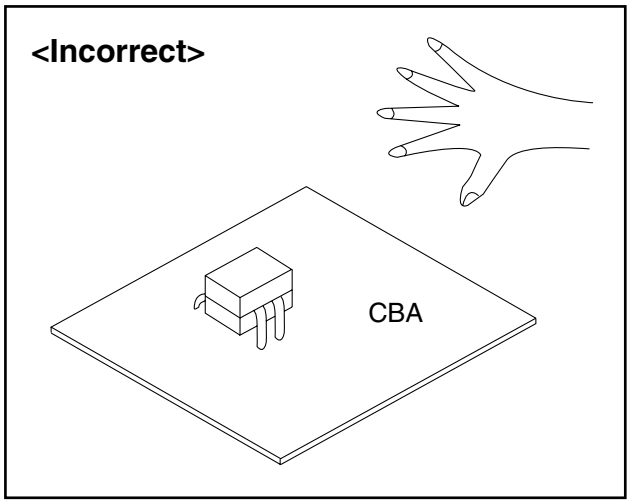
Electrostatic breakdown of the semi-conductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

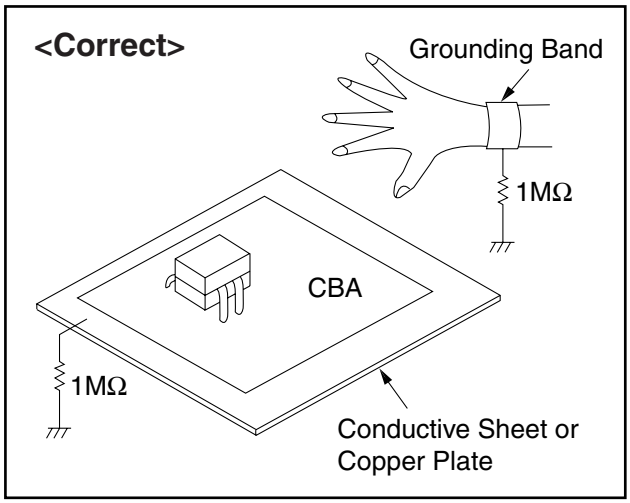
## 1. Ground for Human Body

Be sure to wear a grounding band (1 MΩ) that is properly grounded to remove any static electricity that may be charged on the body.

## 2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding (1 MΩ) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors with your clothing.



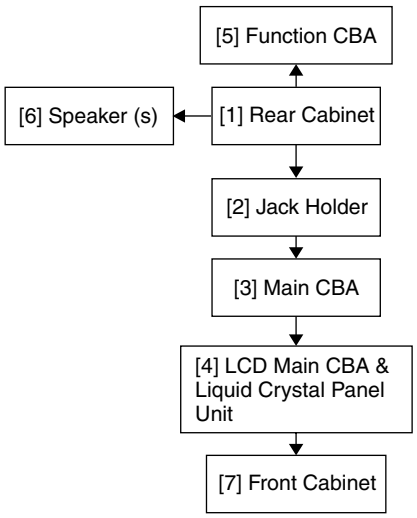



# CABINET DISASSEMBLY INSTRUCTIONS

## [ 6615LF4/STL1505 ]

## 1. Disassembly Flowchart

This flowchart indicates the disassembly steps for the cabinet parts, and the CBA in order to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route and dress the cables as they were.




## 2. Disassembly Method

| Step/ Loc. No. | Part | Removal | | |
|---|---|---|---|---|
| | | Fig. No. | Remove/*Unhook/ Unlock/Release/ Unplug/Unclamp/ Desolder | Note |
| [1] | Rear Cabinet | D1 | 6(S-1), (S-2) | --- |
| [2] | Jack Holder | D2 | 3(S-3), (S-4) | --- |
| [3] | Main CBA | D2 D3 | 10(S-5), *CN101A, *CN102A, *CN103A, *CN402, *CN403, *CN801, *CN802 | --- |
| [4] | LCD Main CBA & Liquid Crystal Panel Unit | D2 D3 | 11(S-6), *CLN104 | --- |
| [5] | Function CBA | D2 D3 | 4(S-7) | --- |
| [6] | Speaker (s) | D2 D3 | 4(S-8) | --- |
| [7] | Front Cabinet | D2 | ---------- | --- |
| | | ↓ (3) | ↓ (4) | ↓ (5) |

**Note:**

(1) Order of steps in procedure. When reassembling, follow the steps in reverse order. These numbers are also used as the Identification (location) No. of parts in figures.

(2) Parts to be removed or installed.

(3) Fig. No. showing procedure of part location

(4) Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P = Spring, L = Locking Tab, S = Screw,
CN = Connector
* = Unhook, Unlock, Release, Unplug, or Desolder
e.g. 2(S-2) = two Screws (S-2),
2(L-2) = two Locking Tabs (L-2)

(5) Refer to the following "Reference Notes in the Table."

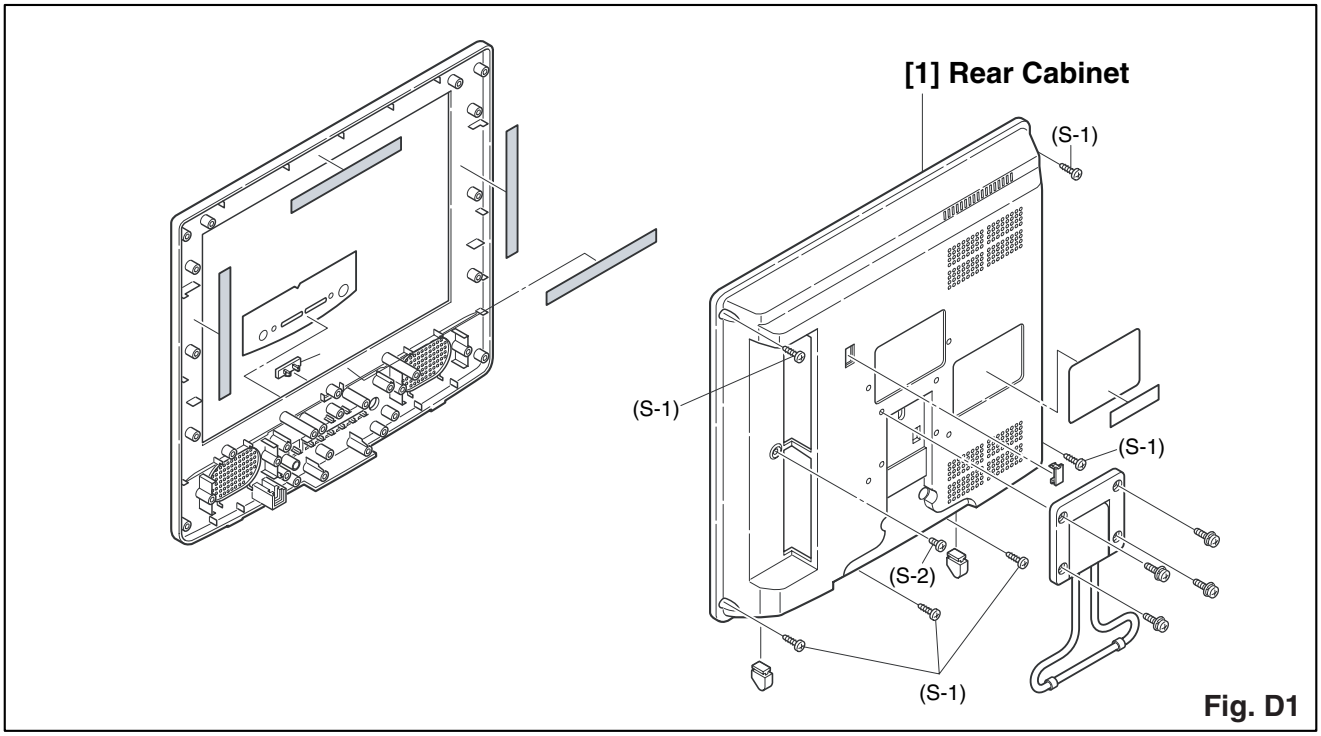

[1] Rear Cabinet
(S-1)
(S-1)
(S-1)
(S-2)
(S-1)

Fig. D1

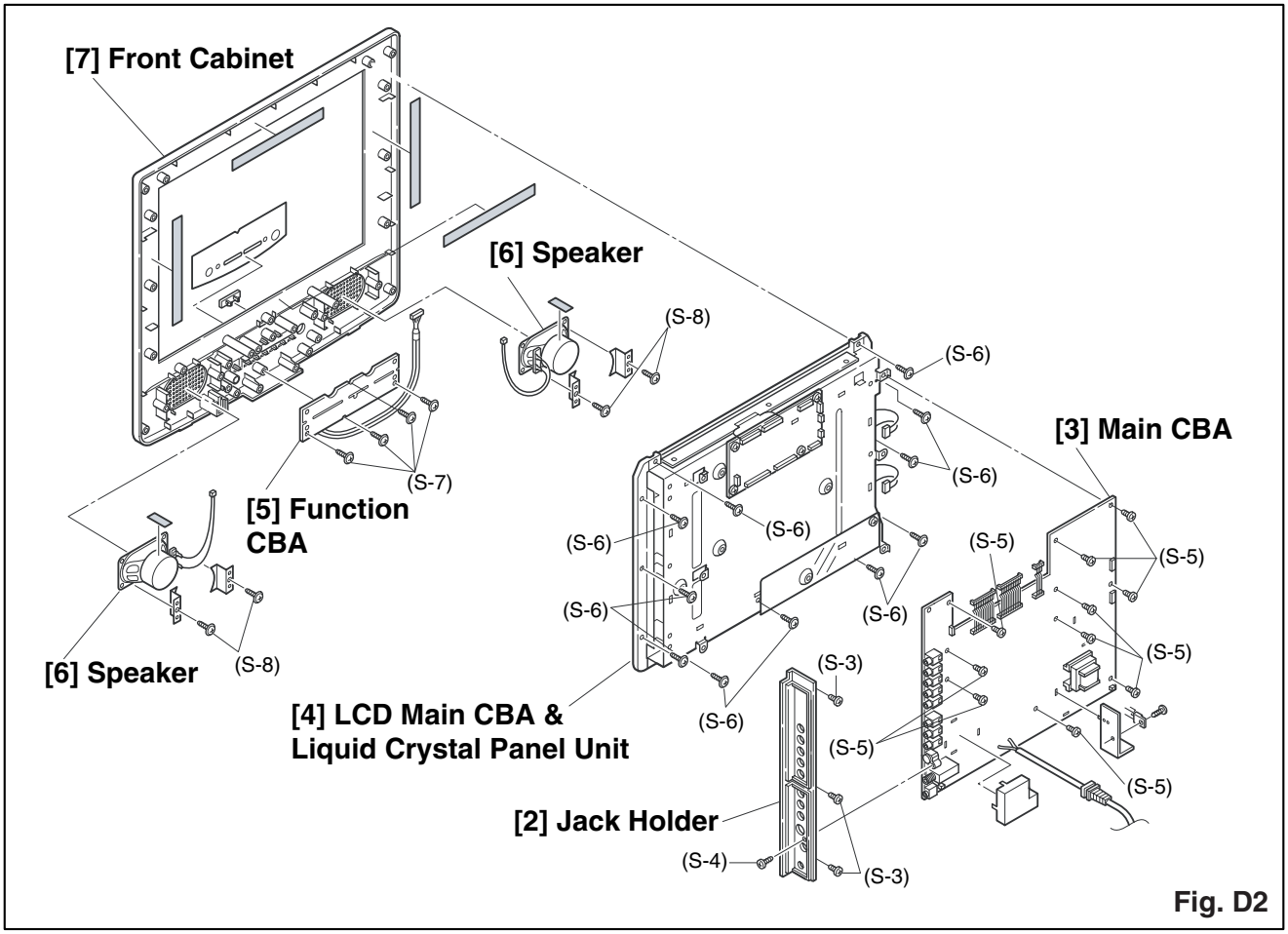

[7] Front Cabinet
[6] Speaker
(S-8)
(S-6)
(S-6)
[3] Main CBA
(S-7)
[5] Function CBA
(S-6)
(S-6)
(S-5)
(S-5)
(S-6)
(S-6)
(S-5)
(S-3)
[6] Speaker
(S-8)
[4] LCD Main CBA & Liquid Crystal Panel Unit
(S-6)
(S-5)
(S-5)
[2] Jack Holder
(S-4)
(S-3)

Fig. D2

## TV Cable Wiring Diagram

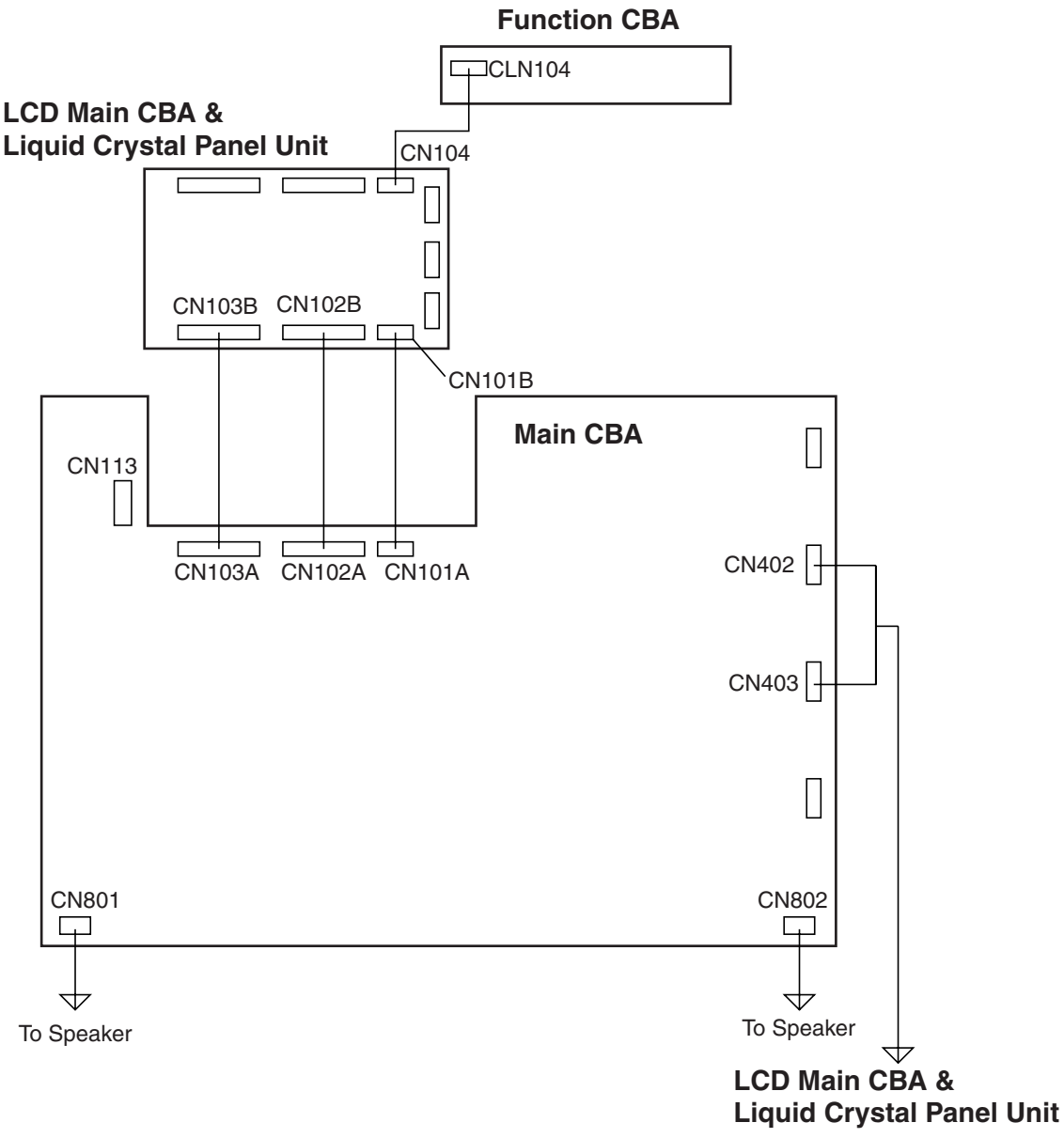
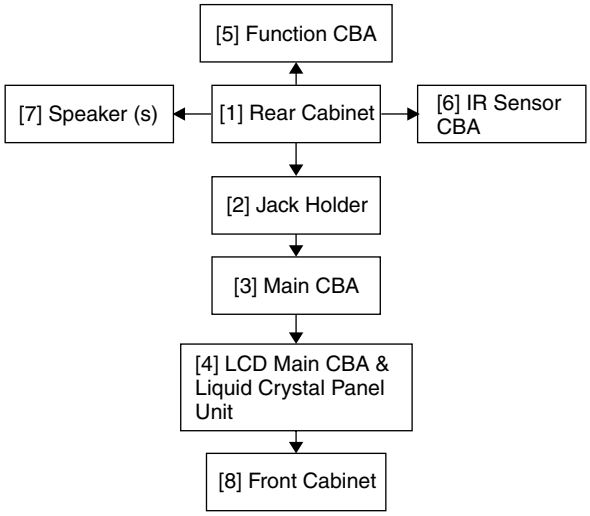



Fig. D3

# [ 6615LF ]

## 1. Disassembly Flowchart

This flowchart indicates the disassembly steps for the cabinet parts, and the CBA in order to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route and dress the cables as they were.




## 2. Disassembly Method

| Step/ Loc. No. | Part | Removal | | |
|---|---|---|---|---|
| | | Fig. No. | Remove/*Unhook/ Unlock/Release/ Unplug/Unclamp/ Desolder | Note |
| [1] | Rear Cabinet | D1 | 10(S-1), 3(S-2) | --- |
| [2] | Jack Holder | D2 | 3(S-3), (S-4) | --- |
| [3] | Main CBA | D2 D3 | 8(S-5), *CN101A, *CN102A, *CN103A, *CN402, *CN403, *CN801, *CN802 | --- |
| [4] | LCD Main CBA & Liquid Crystal Panel Unit | D2 D3 | 11(S-6), *CLN104, *CLN105 | --- |
| [5] | Function CBA | D2 D3 | 4(S-7) | --- |
| [6] | IR Sensor CBA | D2 D3 | (S-8) | --- |
| [7] | Speaker (s) | D2 D3 | 6(S-9) | --- |
| [8] | Front Cabinet | D2 | ---------- | --- |
| | | ↓ (3) | ↓ (4) | ↓ (5) |

**Note:**

(1) Order of steps in procedure. When reassembling, follow the steps in reverse order. These numbers are also used as the Identification (location) No. of parts in figures.

(2) Parts to be removed or installed.

(3) Fig. No. showing procedure of part location

(4) Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P = Spring, L = Locking Tab, S = Screw,
CN = Connector
* = Unhook, Unlock, Release, Unplug, or Desolder
e.g. 2(S-2) = two Screws (S-2),
2(L-2) = two Locking Tabs (L-2)

(5) Refer to the following "Reference Notes in the Table."

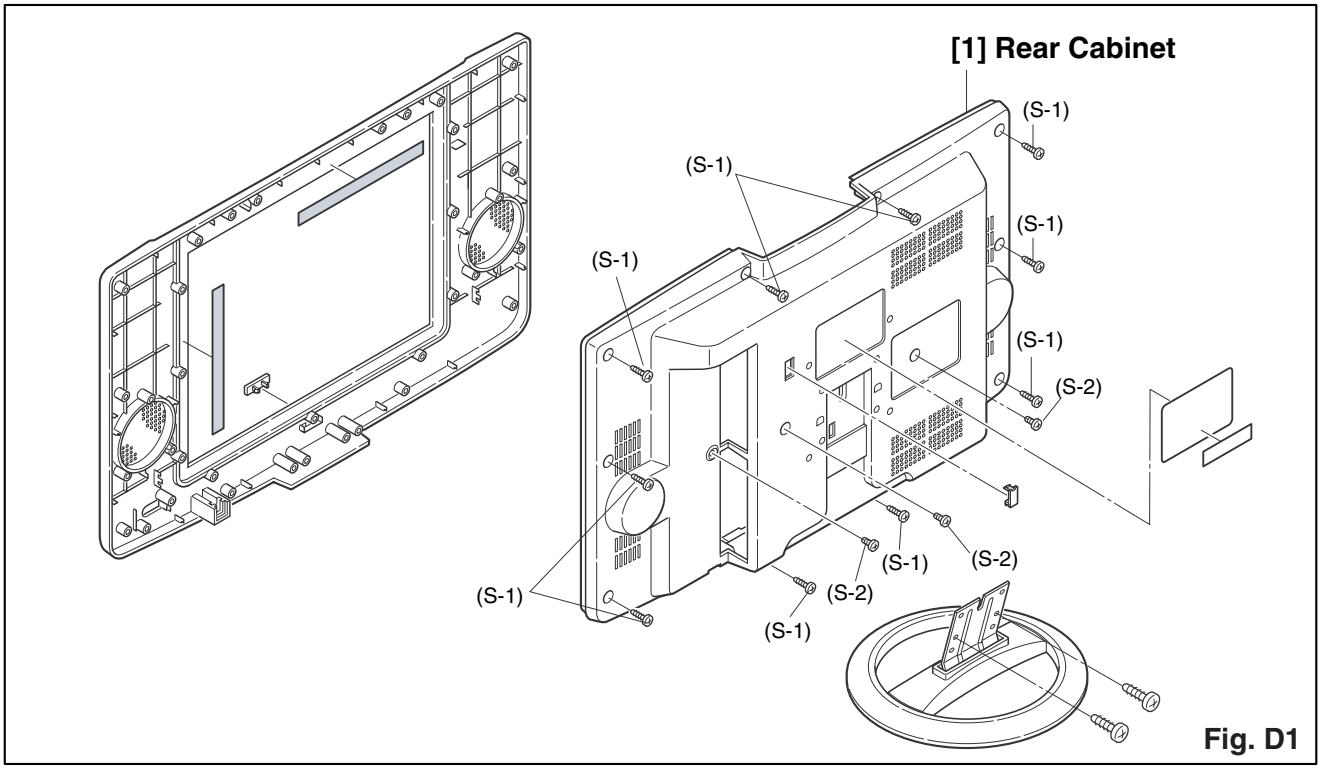

[1] Rear Cabinet
(S-1)
(S-1)
(S-1)
(S-1)
(S-1)
(S-2)
(S-1)
(S-2)
(S-1)
(S-2)
(S-1)

Fig. D1

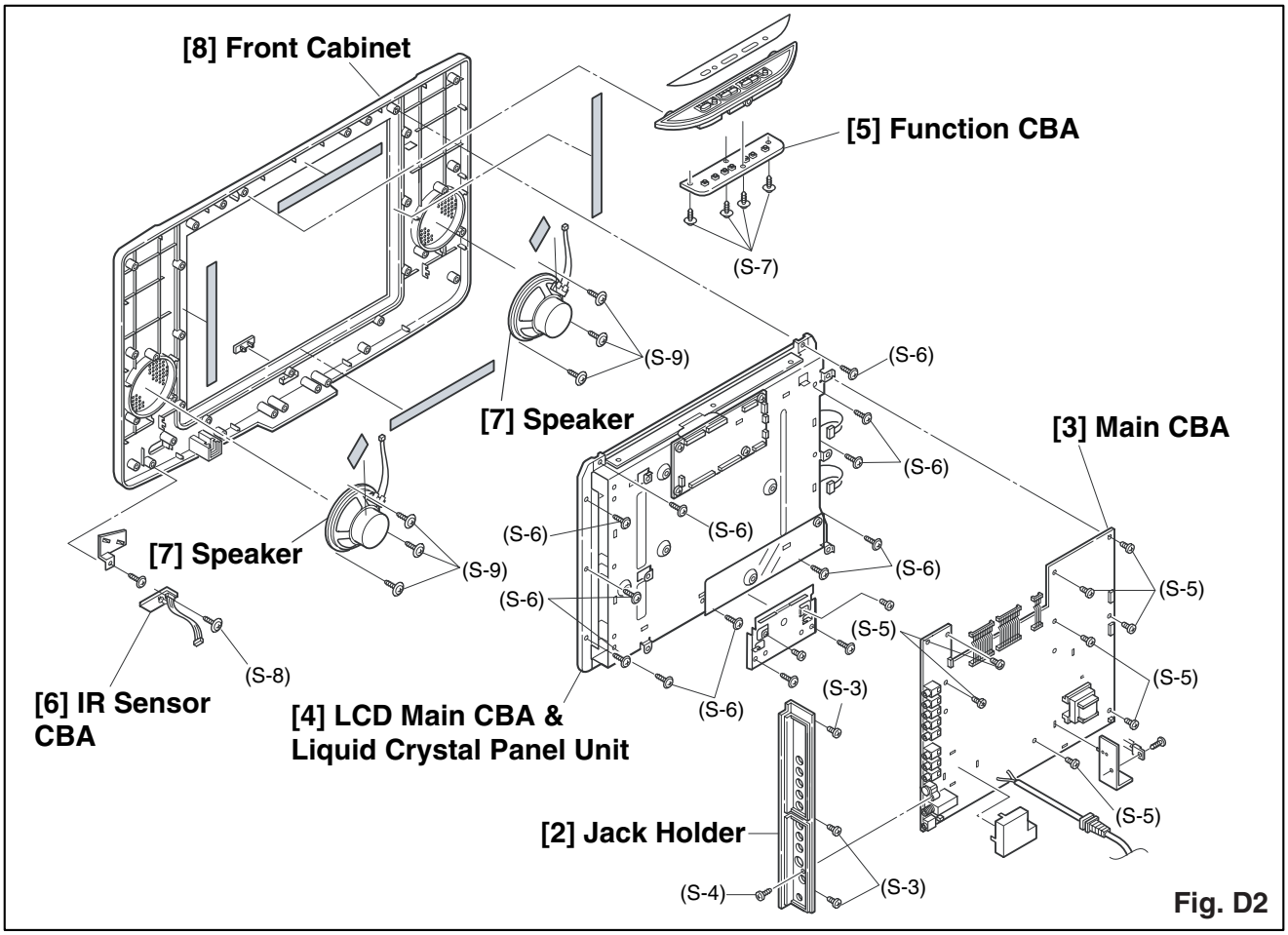

[8] Front Cabinet
[5] Function CBA
(S-7)
(S-9)
[7] Speaker
(S-6)
[3] Main CBA
(S-6)
(S-6)
(S-6)
[7] Speaker
(S-9)
(S-6)
(S-6)
(S-5)
(S-5)
(S-5)
(S-8)
(S-3)
[6] IR Sensor CBA
[4] LCD Main CBA & Liquid Crystal Panel Unit
(S-6)
(S-5)
[2] Jack Holder
(S-4)
(S-3)

Fig. D2

## TV Cable Wiring Diagram

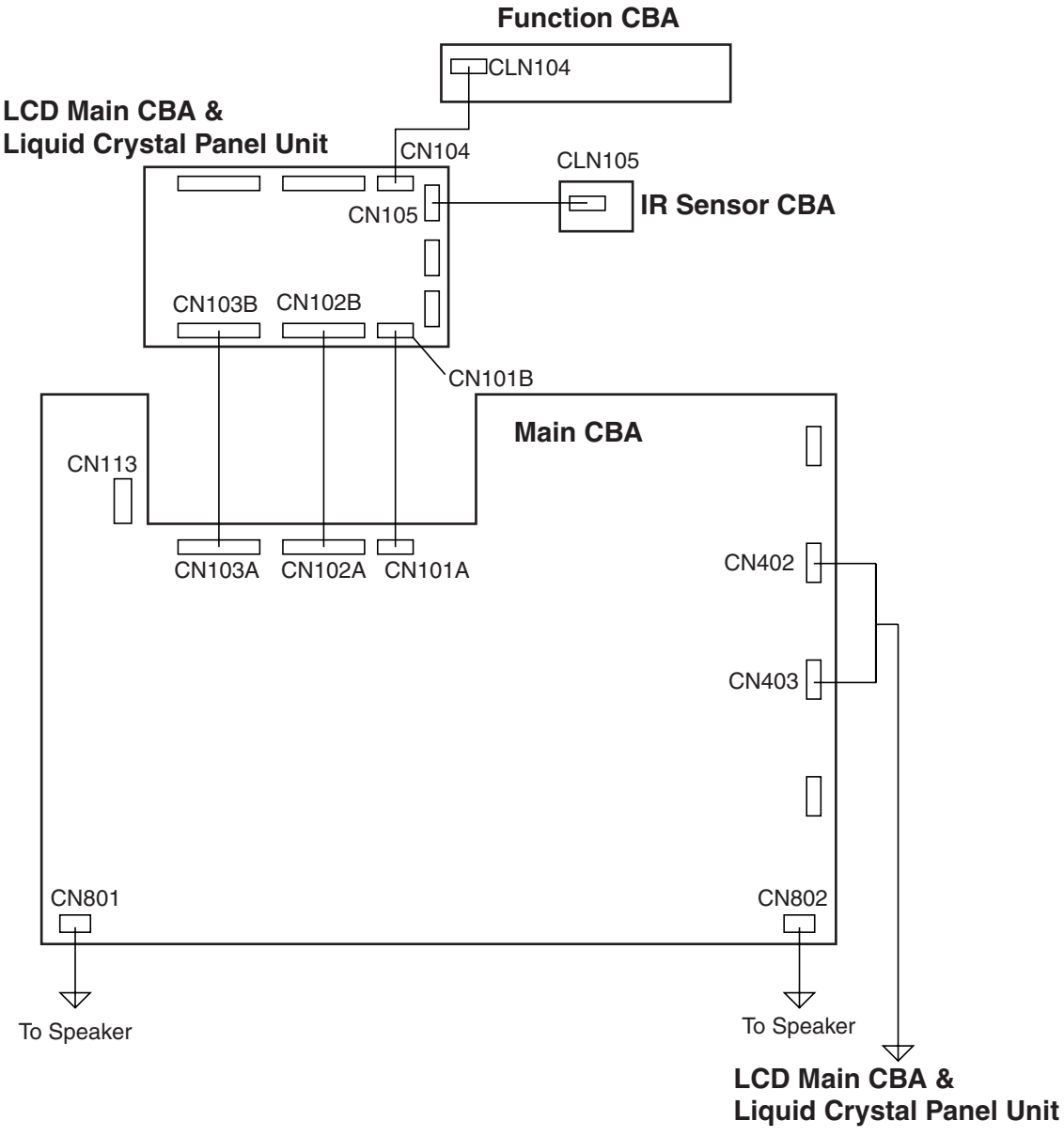



Fig. D3

# ELECTRICAL ADJUSTMENT INSTRUCTIONS

### General Note: "CBA" is abbreviation for "Circuit Board Assembly."

**Note:** Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed.
Also, do not attempt these adjustments unless the proper equipment is available.

## Test Equipment Required

1. DC Voltmeter
2. NTSC Pattern Generator (Color Bar W/White Window, Red Color, Dot Pattern, Gray Scale, Monoscope, Multi-Burst)
3. Remote control unit: Part No. N0105UD or N0127UD
4. Color Analyzer

## How to make Service remote control unit:

1. Prepare normal remote control unit.
(Part No. N0105UD or N0127UD)
Remove 3 Screws from the back lid. (Fig. 1-1)

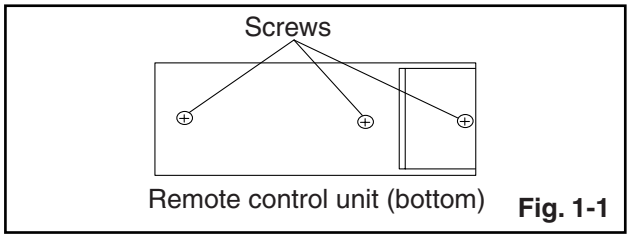


**Fig. 1-1**

2. Added J1 (Jumper Wire) to the remote control CBA. (Fig. 1-2)

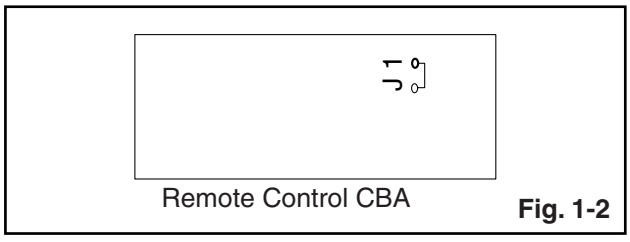


**Fig. 1-2**

## How to set up the service mode:

### Service mode:

1. Use the service remote control unit.
2. Turn the power on. (Use main power on the TV unit.)
3. Press [SLEEP] button on the service remote control unit. Version of micro computer will be displayed on the LCD or display. (Ex: 0004FP-0.47)

## 1. Initial Setting

**General:** Enter the Service mode. (See page 5-1.)

Set the each initial data as shown on table 1 below.

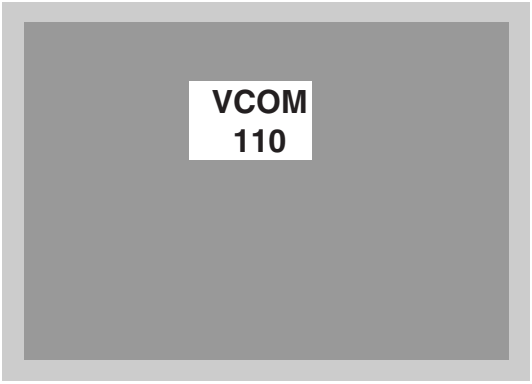
### Table 1: Initial Data

| Item | Button (on the service remote control) | Data Value |
|---|---|---|
| BRT | [MENU] → [1] | 140 |
| CNT | | 195 |
| CLR-R | | 64 |
| CLR-B | | 64 |
| TNT | | 60 |
| V-TNT | | 60 |
| SHR | | 35 |
| S-BRT | [MENU] → [2] | 143 |
| S-CNT | | 195 |
| S-CLR-R | | 64 |
| S-CLR-B | | 64 |
| S-TNT | | 64 |
| S-SHR | | 35 |
| C-BRT | [MENU] → [3] | 140 |
| C-CNT | | 164 |
| C-CLR-R | | 64 |
| C-CLR-B | | 64 |
| C-TNT | | 64 |
| C-SHR | | 35 |

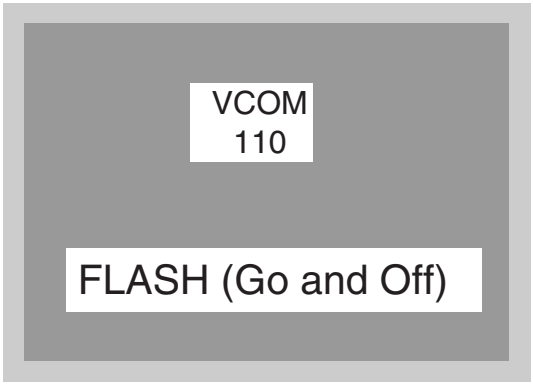
| Item | Button (on the service remote control) | Data Value |
|---|---|---|
| D2-BRT | [MENU] → [5] | 146 |
| D2-CNT | | 153 |
| D2-CLR-R | | 63 |
| D2-CLR-B | | 63 |
| D2-TNT | | 64 |
| D2-SHR | | 35 |
| D3-BRT | [MENU] → [6] | 143 |
| D3-CNT | | 160 |
| D3-CLR-R | | 66 |
| D3-CLR-B | | 66 |
| D3-TNT | | 64 |
| D3-SHR | | 35 |
| DR(C/D1) | [VOL ▼] → [4] | 126 |
| D-DR(C/D2) | | 147 |
| DB(C/D1) | [VOL ▼] → [6] | 119 |
| D-DB(C/D2) | | 142 |

## 2. Flicker Adjustment

1. Enter the Service mode. (See page 5-1.)
2. Press [2] button on the remote control unit. The following screen appears.




3. If Flicker Adjustment is not fit, the screen become the following.




4. Press [CH ▲ / ▼] buttons on the remote control unit so that flash stops.

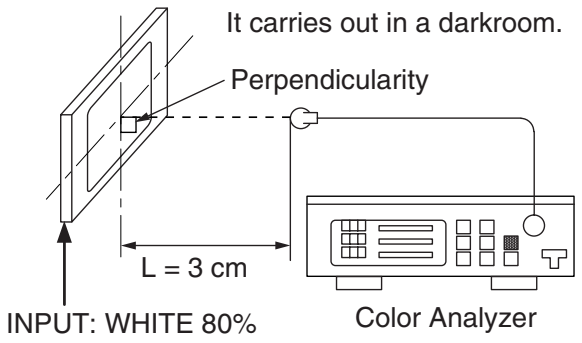
**The following adjustment normally are not attempted in the field. Only when replacing the LCD Panel then adjust as a preparation.**

## 3. White Balance Adjustment

**Purpose:** To mix red, green and blue beams correctly for pure white.

**Symptom of Misadjustment:** White becomes bluish or reddish.

| Test Point | Adj. Point | Mode | Input |
|---|---|---|---|
| Screen | VOL. ▼ buttons | **[RF/VIDEO1]** C/D1 **[VIDEO2]** C/D2 | White Purity (APL 80%) or (APL 20%) |
| M. EQ. | | Spec. | |
| Pattern Generator, Color analyzer | | x: 0.256 to 0.316, y: 0.264 to 0.324 | |
| Figure | | | |




**Note:** Use service remote control unit

1. Operate the unit for more than 20 minutes.
2. Input the White Purity (APL 80% or APL 20%).
3. Set the color analyzer to the CHROMA mode and bring the optical receptor to the center on the LCD-Panel surface after zero point calibration as shown above.
   **Note:** The optical receptor must be set perpendicularly to the LCD Panel surface.
4. **[RF/VIDEO1]**
   Enter the Service mode. Press "VOL ▼" button on the remote control unit and select "C/D/S-1" mode.
   **[VIDEO2]**
   Enter the Service mode. Press "VOL ▼" button on the remote control unit and select "C/D/S-2" mode.
5. **[RF/VIDEO1]**
   When "x" value and "y" value are not within specification, adjust "DB (C/D1)" or "DR (C/D1)". Refer to "1. Initial Setting."
   **Note:** "DB(C/D1)" or "DR(C/D1)" must be adjusted within ±0.01.
   **[VIDEO2]**
   When "x" value and "y" value are not within specification, adjust "DB(C/D2)" or "DR(C/D2)". Refer to "1. Initial Setting."
   **Note:** "DB(C/D2)" or "DR(C/D2)" must be adjusted within ±0.01.
6. Turn the power off and on again. (Main power button on the TV unit.)

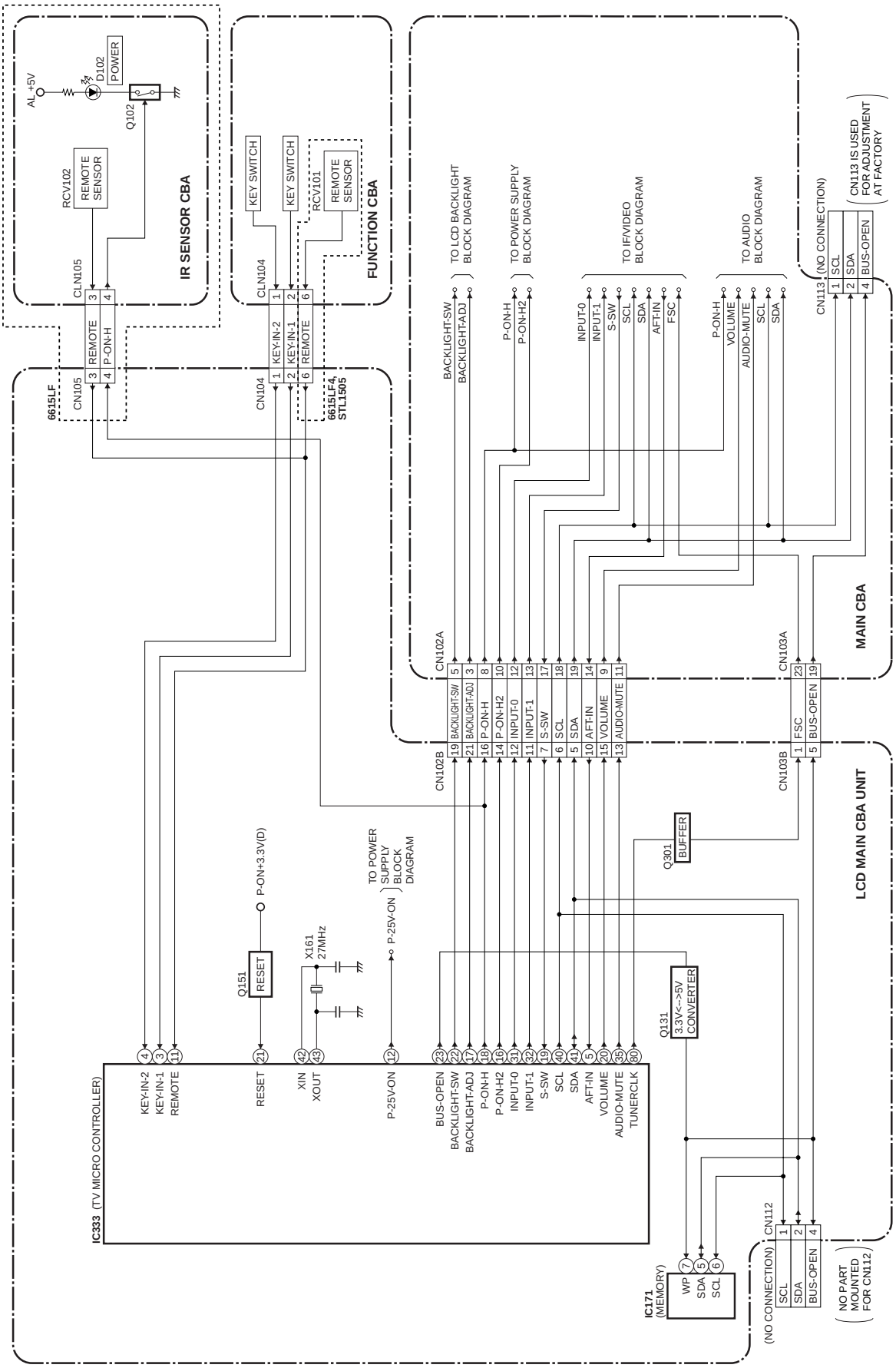
# HOW TO INITIALIZE THE LCD TELEVISION

## How to initialize the LCD television:

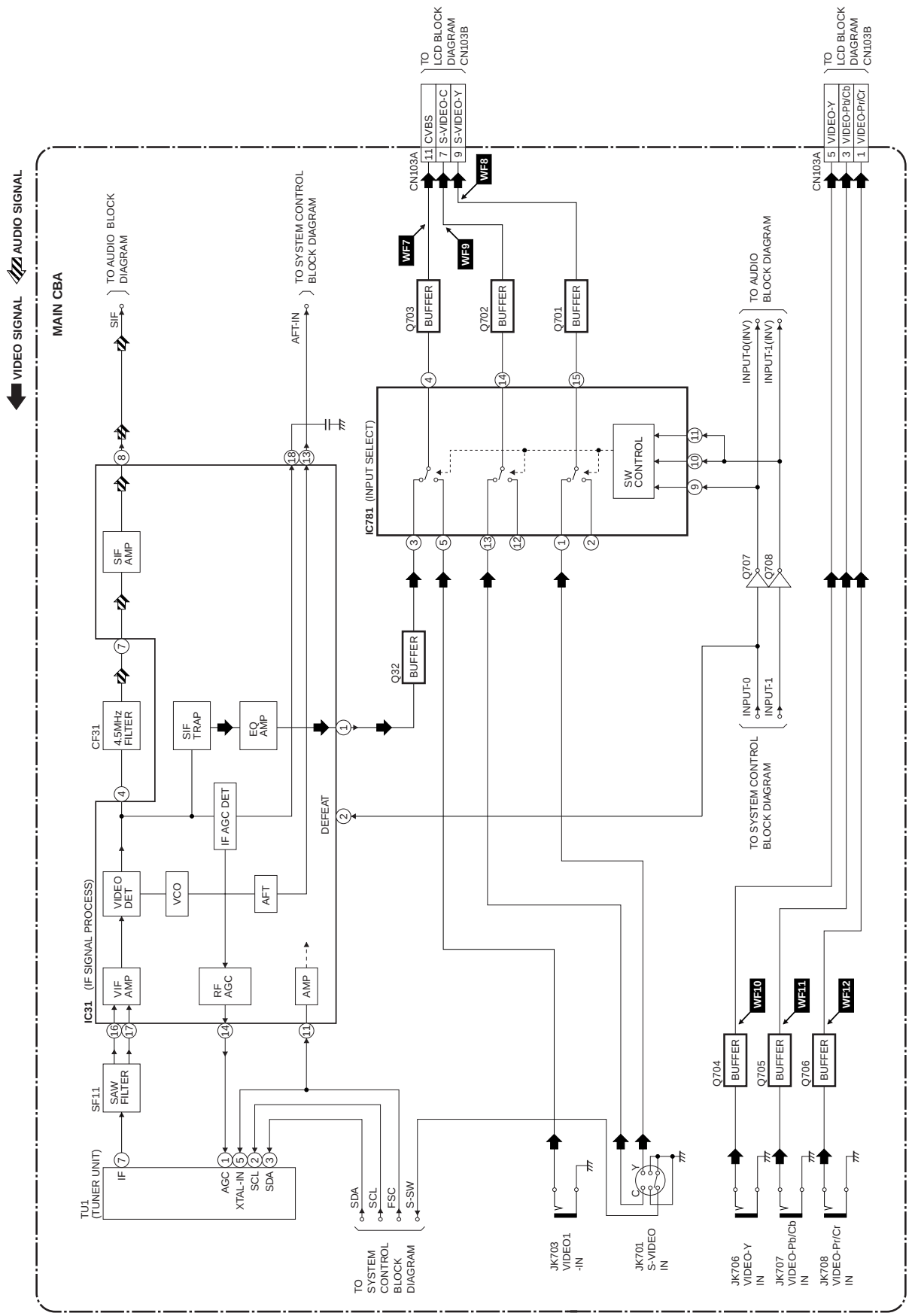
1. Turn the power on. (Use main power on the TV unit.)
2. To enter the service mode, press [POWER], [2], [7], [1], and [MUTE] buttons on the remote control unit in that order within 5 seconds.
   - To cancel the service mode, press [POWER] button on the remote control.
3. To initialize the LCD television, press “DISPLAY” button on the remote control unit.
4. Confirm "FF" indication on the upper right of the screen.

# BLOCK DIAGRAMS

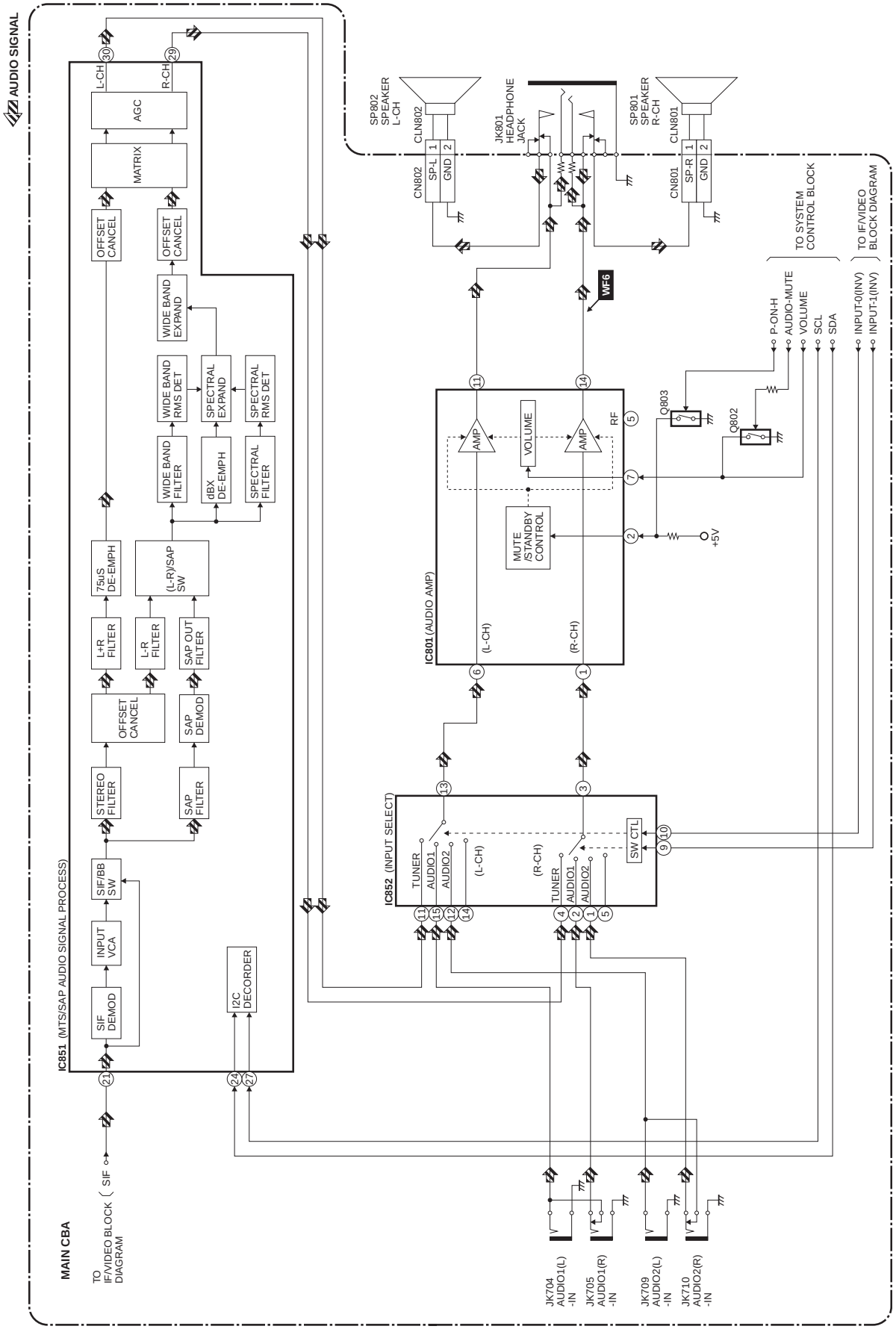
## System Control Block Diagram



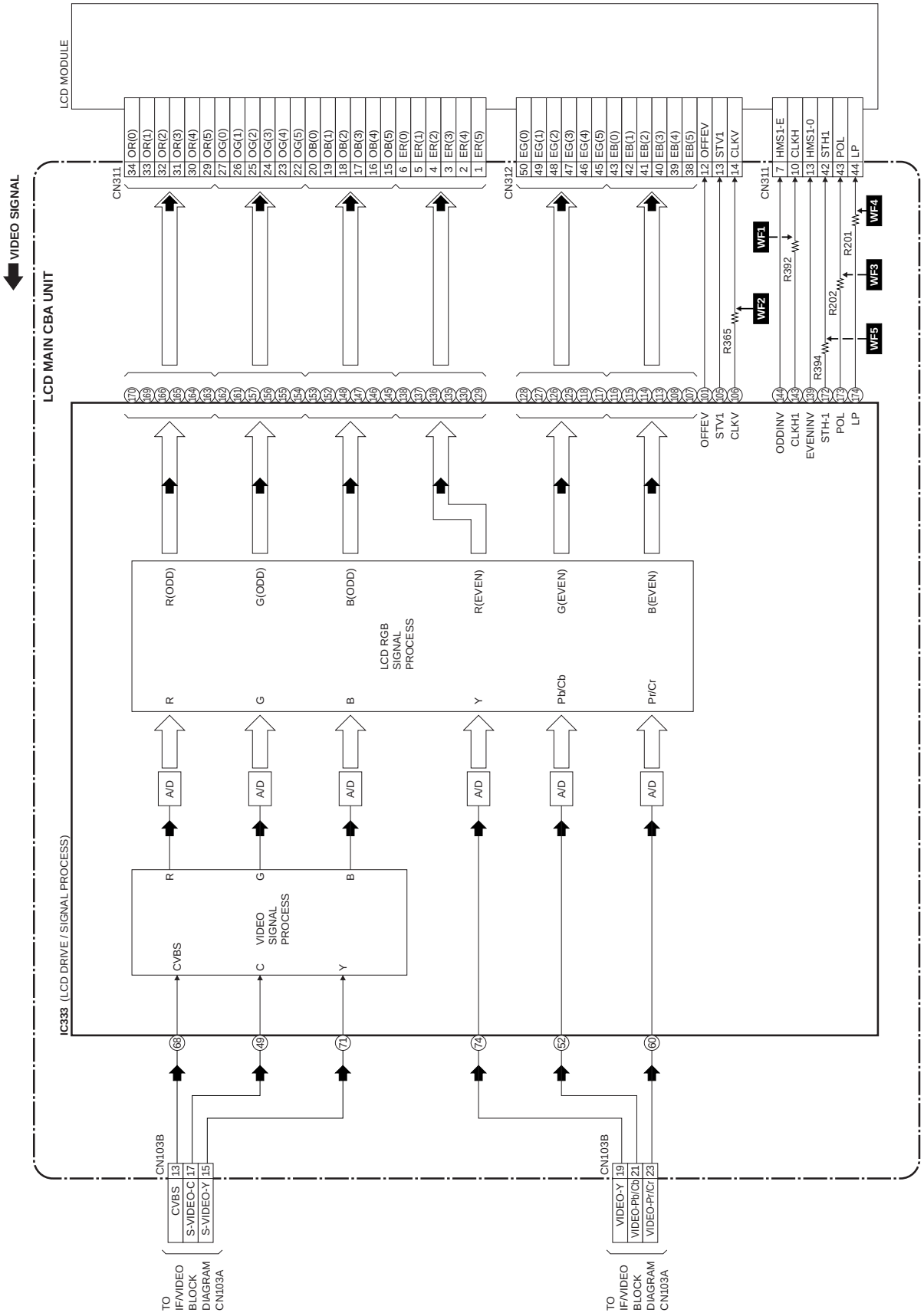
# IF/Video Block Diagram



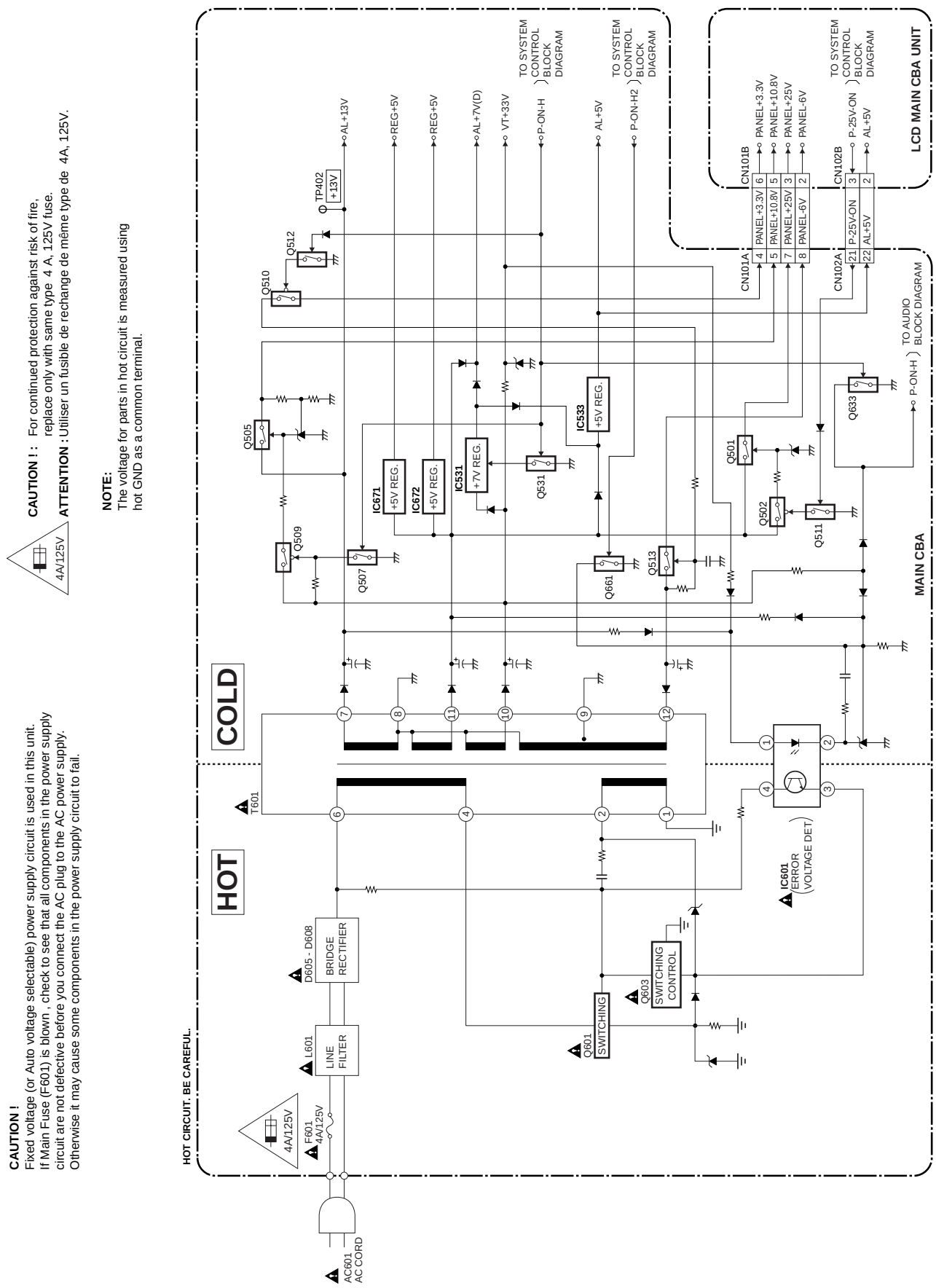
# Audio Block Diagram



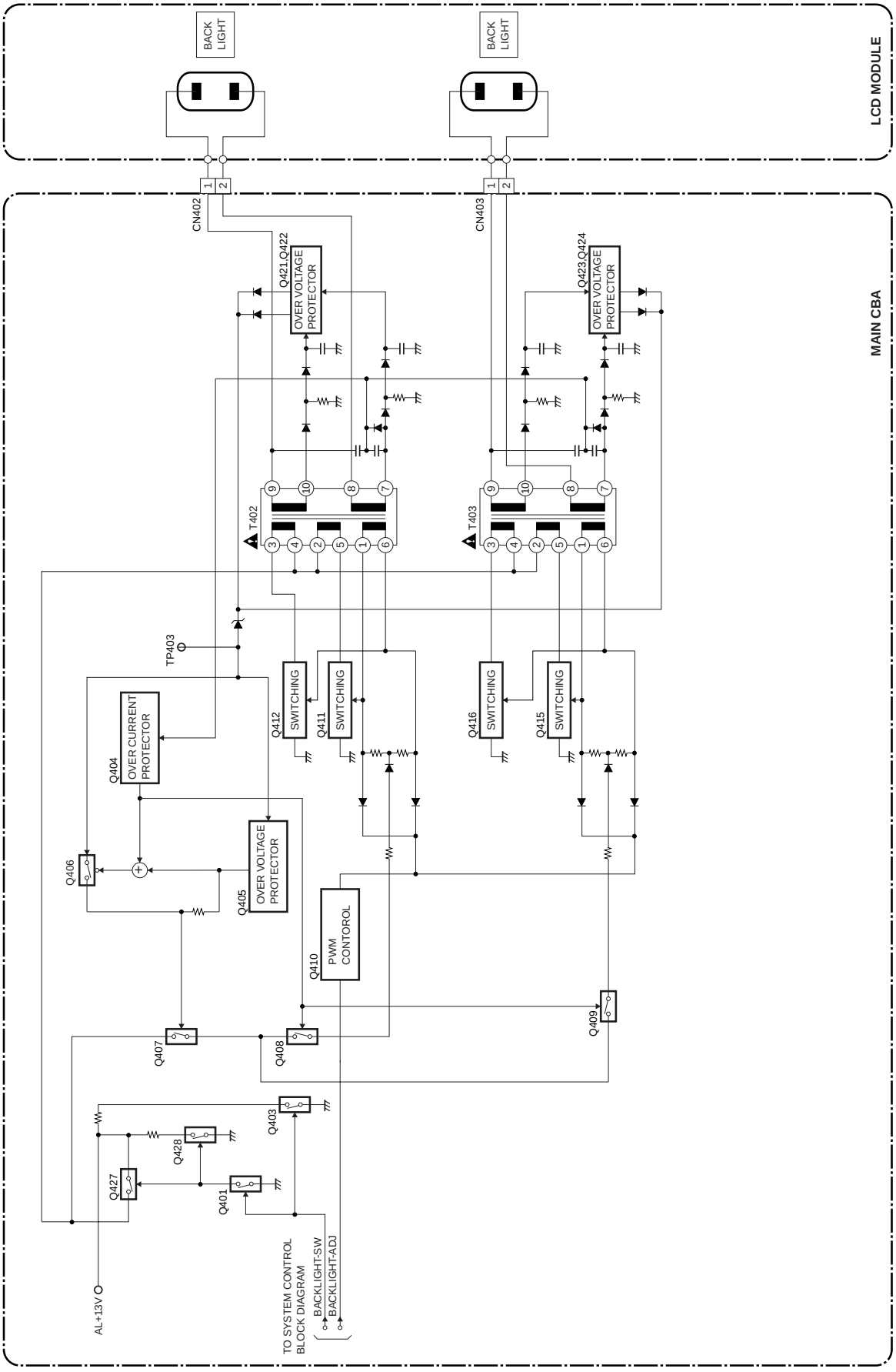
# LCD Block Diagram



# Power Supply Block Diagram



# LCD Backlight Block Diagram



# SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

## Standard Notes

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark "⚠" in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

### Notes:

1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms (K = $10^3$, M = $10^6$).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in μF (P = $10^{-6}$ μF).
5. All voltages are DC voltages unless otherwise specified.

### Note of Capacitors:

ML --- Mylar Cap. PP --- Metallized Film Cap. SC --- Semiconductor Cap. L --- Low Leakage type

### Temperature Characteristics of Capacitors are noted with the following:

B --- ±10% CH --- 0±60 ppm/°C CSL --- +350~-1000 ppm/°C

### Tolerance of Capacitors are noted with the following:

Z --- +80~-20%

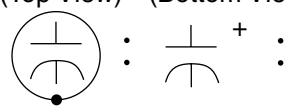
### Note of Resistors:

CEM --- Cement Res. MTL --- Metal Res. F --- Fuse Res.

**Capacitors and transistors are represented by the following symbols.**

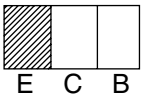
CBA Symbols

(Top View) (Bottom View)



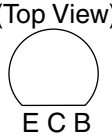
Electrolytic Capacitor

(Bottom View)




Transistor or Digital Transistor

(Top View)




NPN Transistor

(Top View)

PNP Transistor

(Top View)

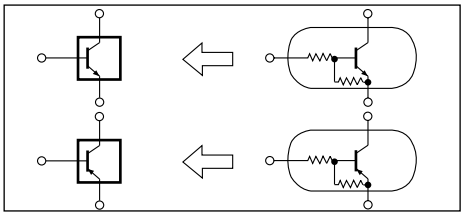
NPN Digital Transistor

(Top View)

PNP Digital Transistor

Schematic Diagram Symbols

Digital Transistor



## LIST OF CAUTION, NOTES, AND SYMBOLS USED IN THE SCHEMATIC DIAGRAMS ON THE FOLLOWING PAGES:

### 1. CAUTION:

**CAUTION:** FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE_A,_V FUSE.

**ATTENTION:** UTILISER UN FUSIBLE DE RECHANGE DE MÊME TYPE DE_A,_V.

### 2. CAUTION:

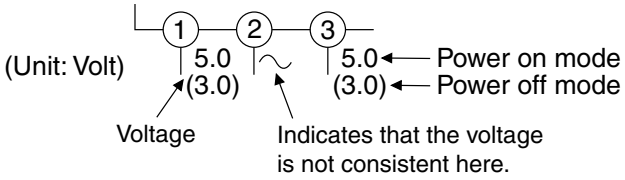
Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F601) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

### 3. Note:

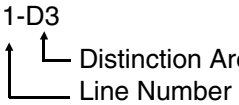
1. Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.
2. To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

### 4. Voltage indications on the schematics are as shown below:

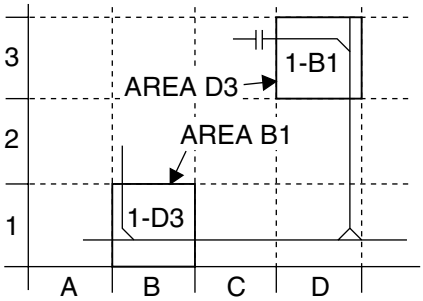
Plug the TV power cord into a standard AC outlet.:




### 5. How to read converged lines




Examples:
1. "1-D3" means that line number "1" goes to the line number "1" of the area "D3".
2. "1-B1" means that line number "1" goes to the line number "1" of the area "B1".




### 6. Test Point Information

: Indicates a test point with a jumper wire across a hole in the PCB.

: Used to indicate a test point with a component lead on foil side.

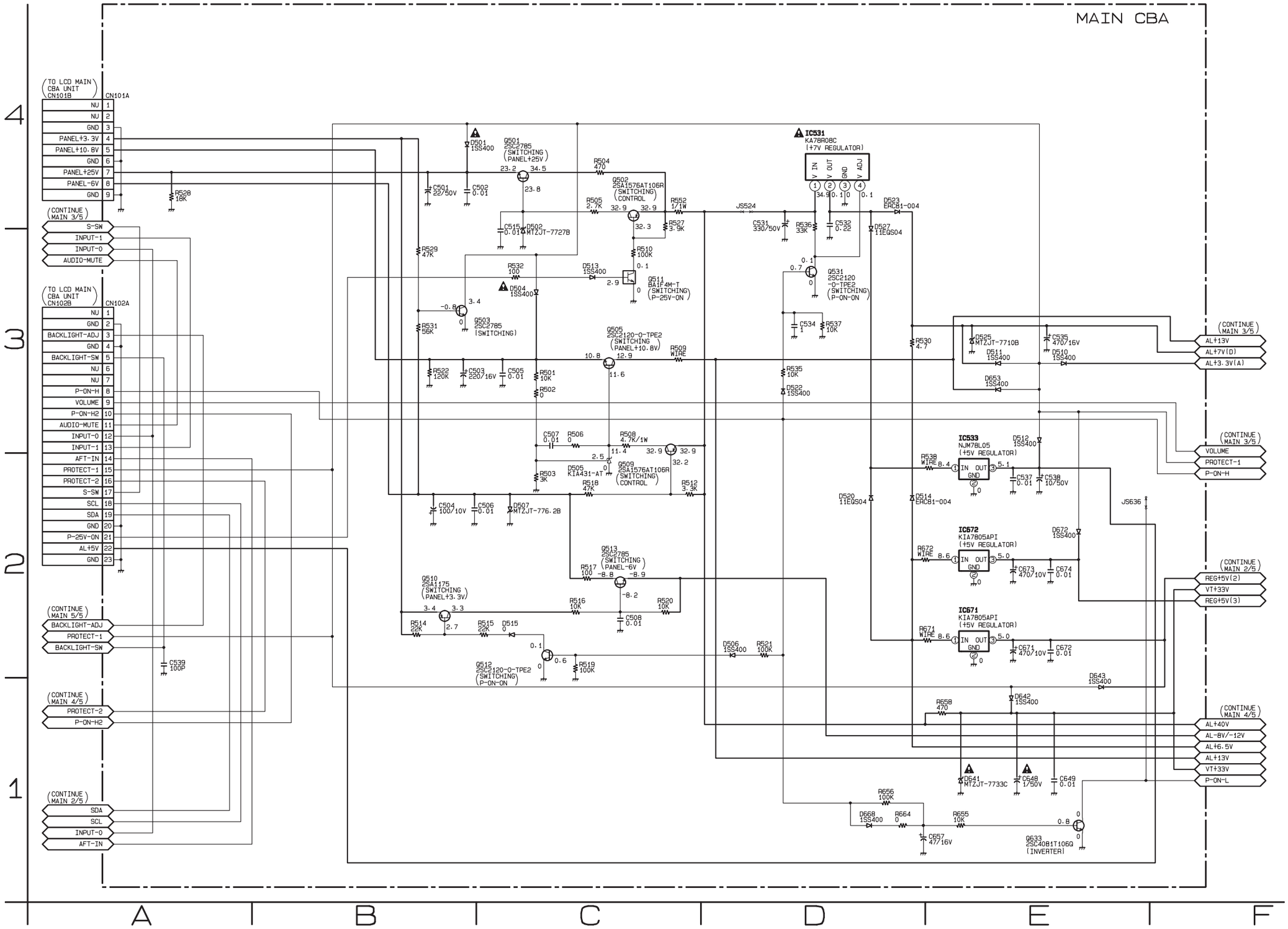
: Used to indicate a test point with no test pin.

: Used to indicate a test point with a test pin.

# Main 1/5 Schematic Diagram

MAIN 1/5

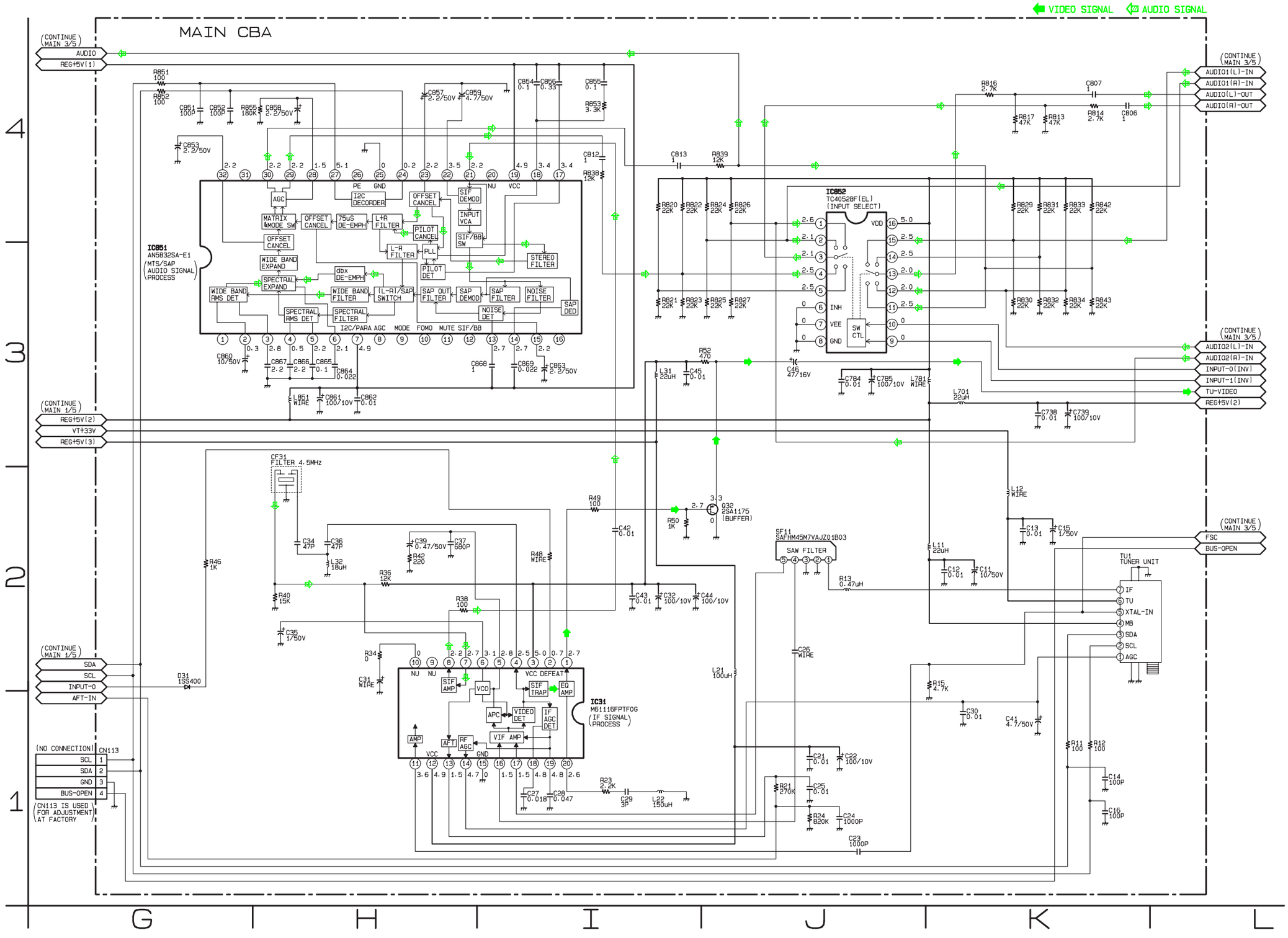
| Ref No. | Position |
|---|---|
| ICS | |
| IC531 | D-4 |
| IC533 | E-3 |
| IC671 | E-2 |
| IC672 | E-2 |
| TRANSISTORS | |
| Q501 | C-4 |
| Q502 | C-4 |
| Q503 | B-3 |
| Q505 | C-3 |
| Q509 | C-3 |
| Q510 | B-2 |
| Q511 | C-3 |
| Q512 | C-2 |
| Q513 | C-2 |
| Q531 | D-3 |
| Q633 | E-1 |
| CONNECTORS | |
| CN101A | A-4 |
| CN102A | A-3 |



# Main 2/5 Schematic Diagram

MAIN 2/5

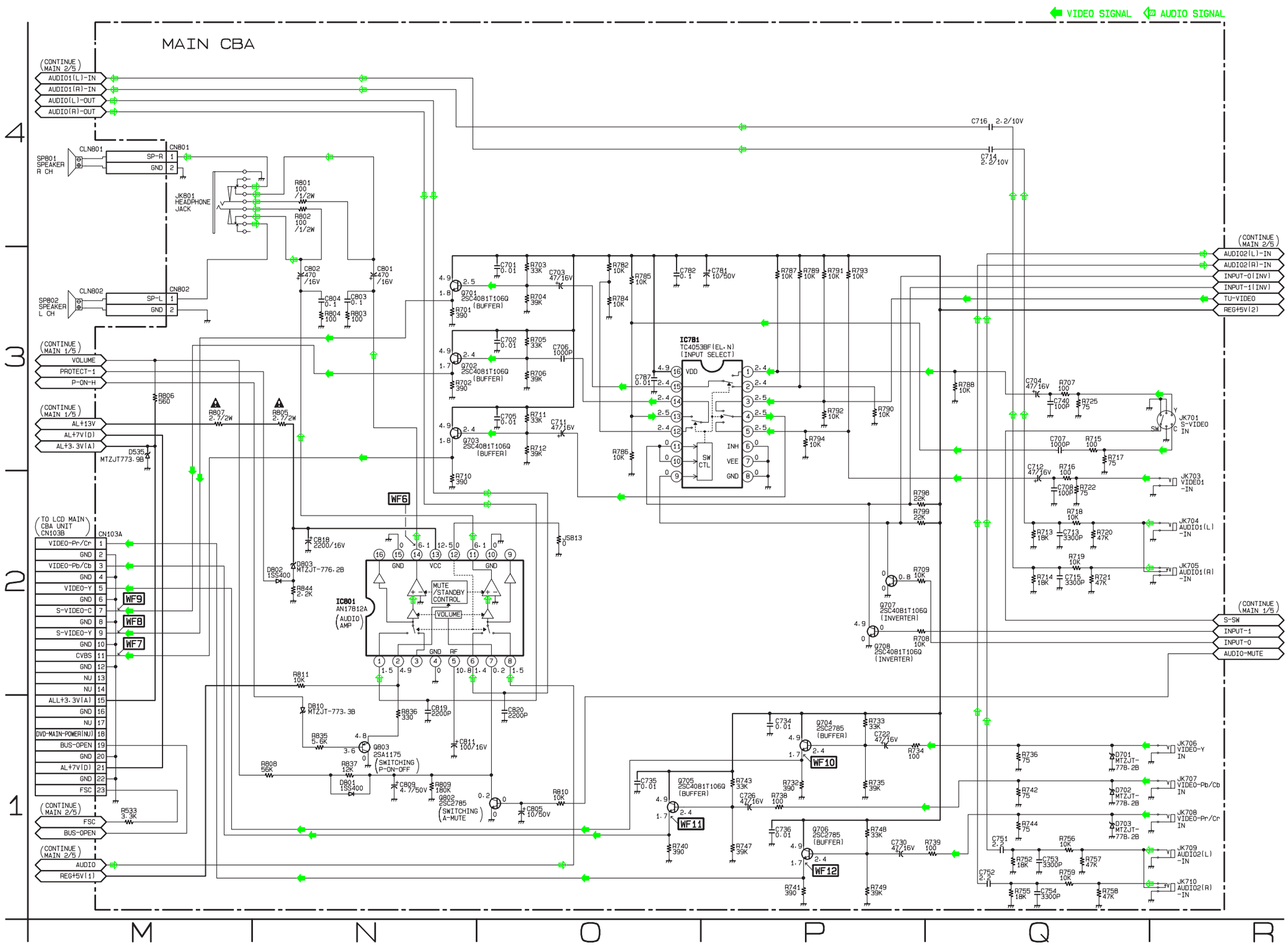
| Ref No. | Position |
|---|---|
| ICS | |
| IC31 | I-1 |
| IC851 | H-3 |
| IC852 | J-4 |
| TRANSISTOR | |
| Q32 | J-2 |
| CONNECTOR | |
| CN113 | G-1 |



# Main 3/5 Schematic Diagram

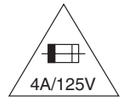
MAIN 3/5

| Ref No. | Position |
|---|---|
| ICS | |
| IC781 | P-3 |
| IC801 | N-2 |
| TRANSISTORS | |
| Q701 | N-3 |
| Q702 | N-3 |
| Q703 | N-3 |
| Q704 | P-1 |
| Q705 | O-1 |
| Q706 | P-1 |
| Q707 | P-2 |
| Q708 | P-2 |
| Q802 | O-1 |
| Q803 | N-1 |
| CONNECTORS | |
| CN801 | M-4 |
| CN802 | M-3 |
| CN103A | M-2 |



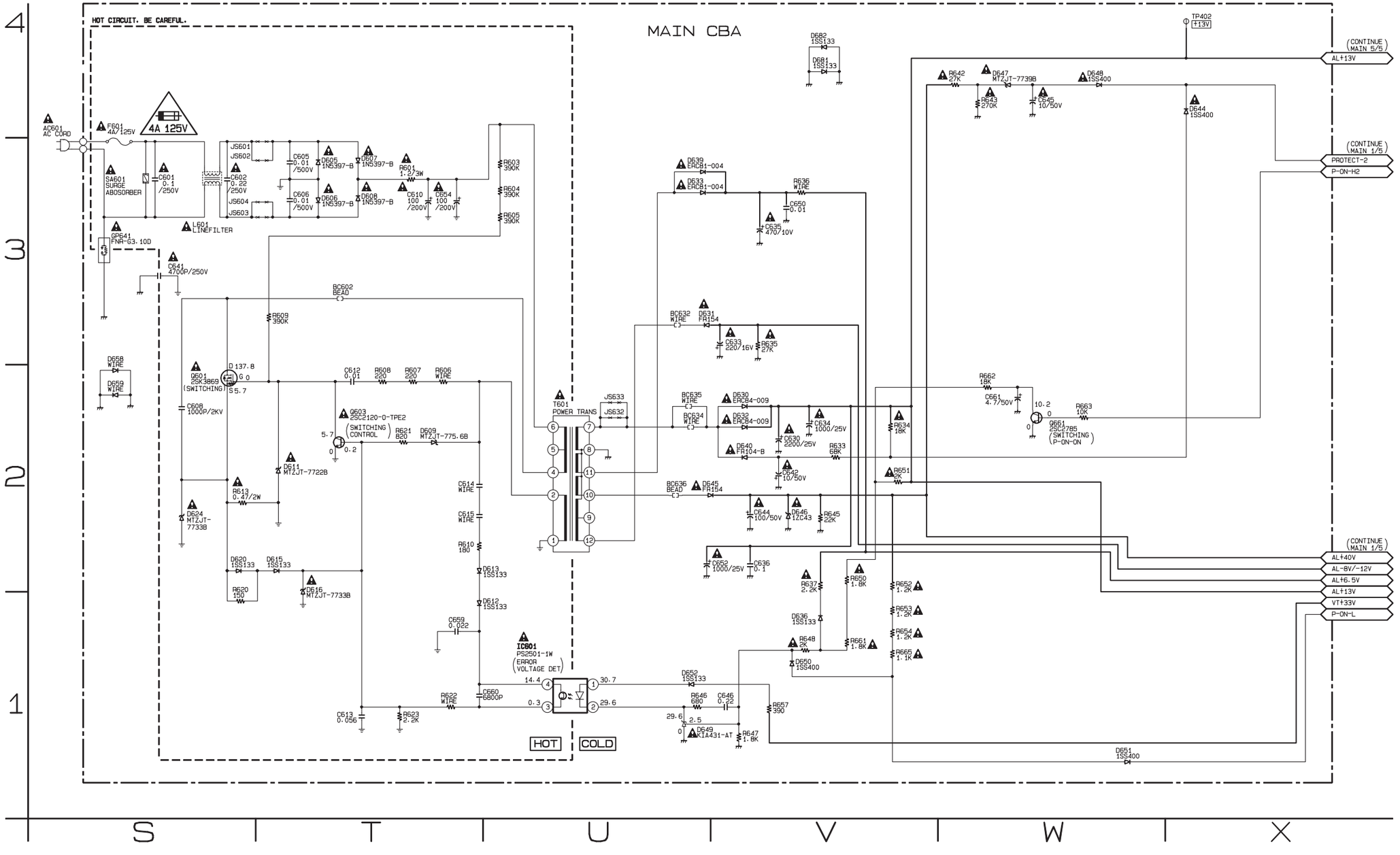
# Main 4/5 Schematic Diagram

**CAUTION !**
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F601) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.




**CAUTION ! :** For continued protection against risk of fire, replace only with same type 4 A, 125V fuse.
**ATTENTION :** Utiliser un fusible de rechange de même type de 4A, 125V.

**NOTE:**
The voltage for parts in hot circuit is measured using hot GND as a common terminal.



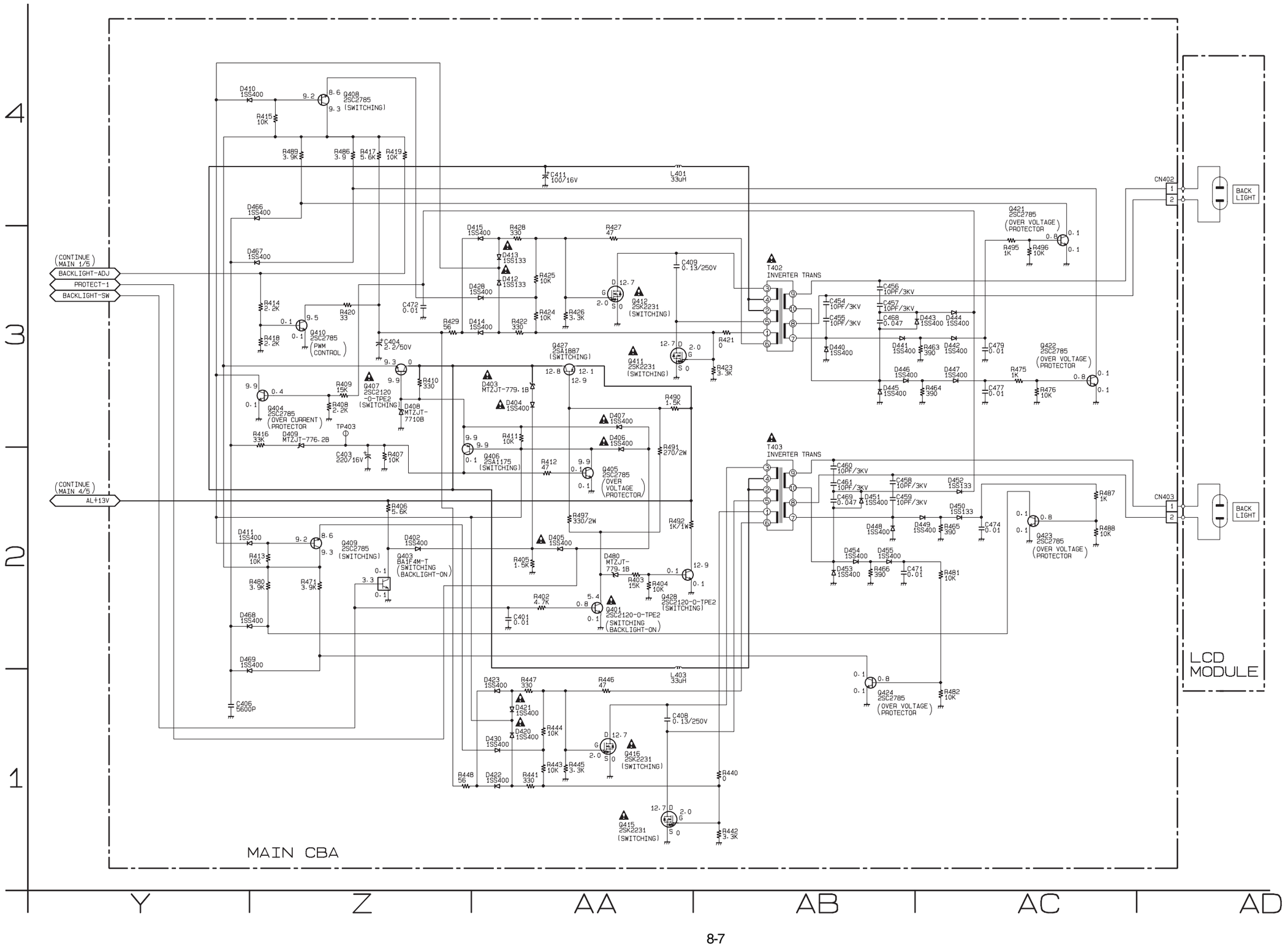

MAIN 4/5

| Ref No. | Position |
|---|---|
| IC | |
| IC601 | U-1 |
| TRANSISTORS | |
| Q601 | S-2 |
| Q603 | T-2 |
| Q661 | W-2 |
| TESTPOINT | |
| TP402 | X-4 |

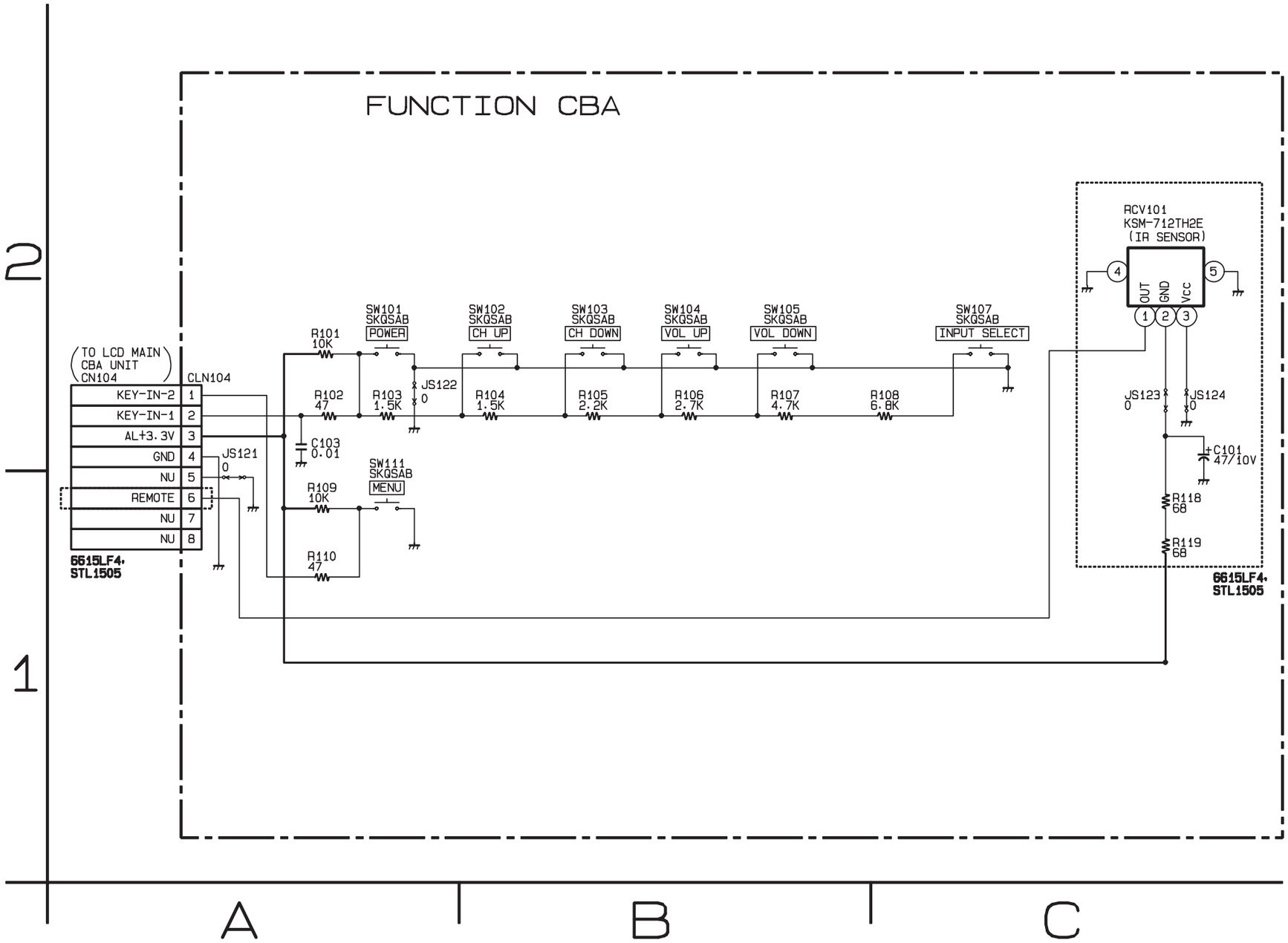
# Main 5/5 Schematic Diagram

MAIN5/5

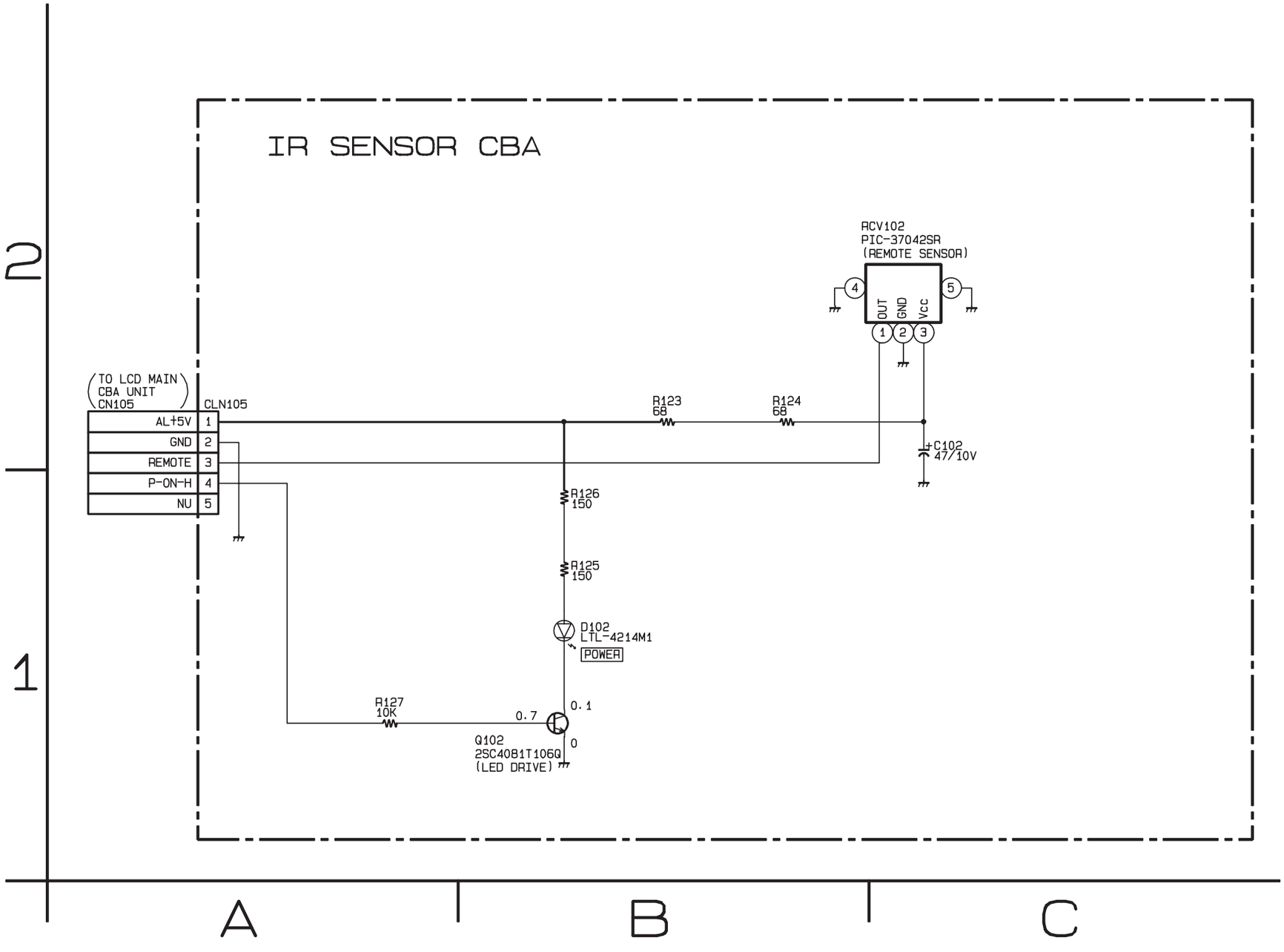
| Ref No. | Position |
|---|---|
| TRANSISTORS | |
| Q401 | AA-2 |
| Q403 | Z-2 |
| Q404 | Z-3 |
| Q405 | AA-2 |
| Q406 | AA-2 |
| Q407 | Z-3 |
| Q408 | Z-4 |
| Q409 | Z-2 |
| Q410 | Z-3 |
| Q411 | AA-3 |
| Q412 | AA-3 |
| Q415 | AA-1 |
| Q416 | AA-1 |
| Q421 | AC-4 |
| Q422 | AC-3 |
| Q423 | AC-2 |
| Q424 | AB-1 |
| Q427 | AA-3 |
| Q428 | AA-2 |
| CONNECTORS | |
| CN402 | AD-4 |
| CN403 | AD-2 |
| TESTPOINT | |
| TP403 | Z-3 |



## Function Schematic Diagram



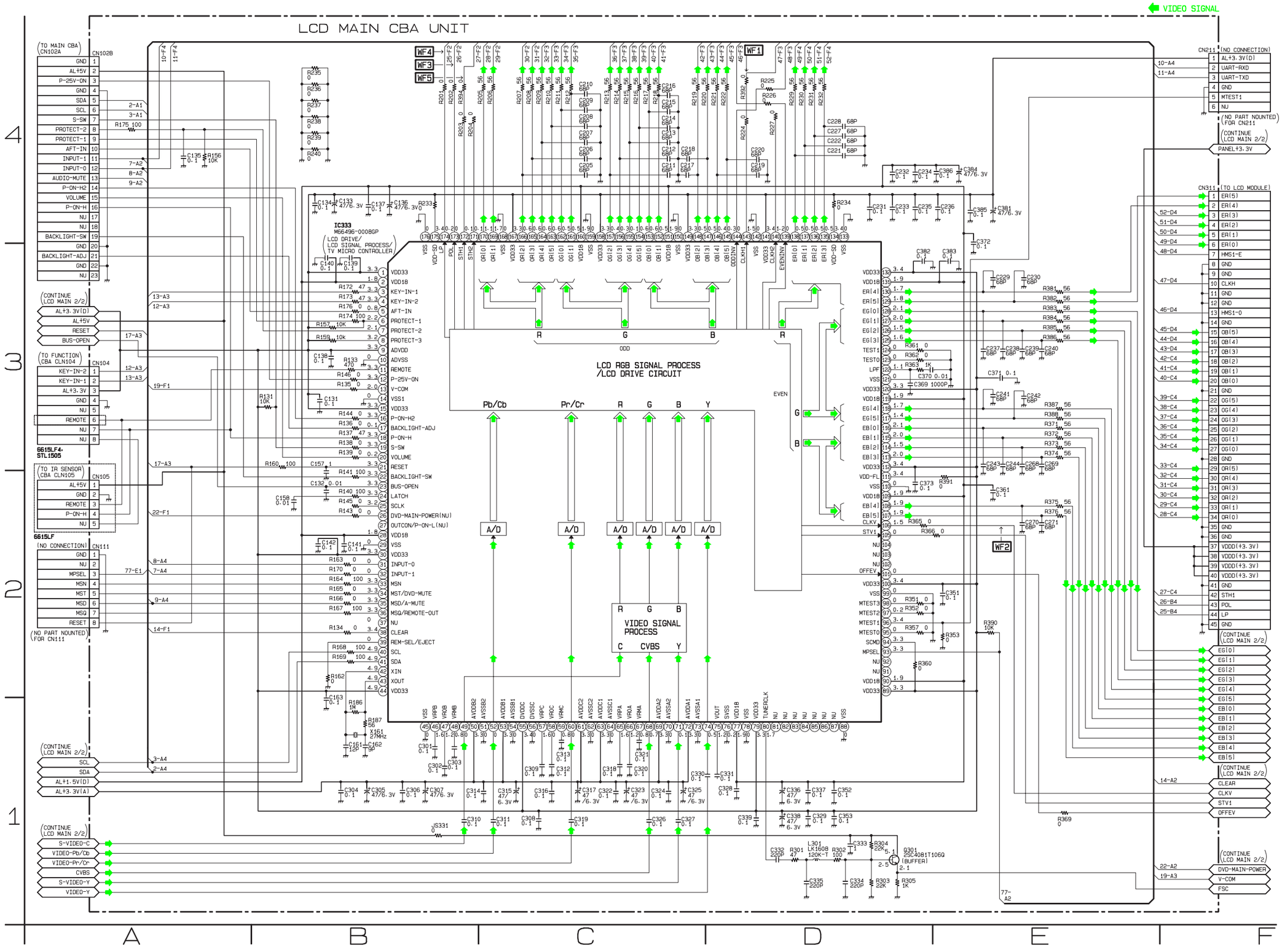
## IR Sensor Schematic Diagram ( 6615LF)



# LCD Main 1/2 Schematic Diagram

LCD MAIN 1/2

| Ref No. | Position |
|---|---|
| IC | |
| IC333 | B-3 |
| TRANSISTOR | |
| Q301 | D-1 |
| CONNECTORS | |
| CN104 | A-3 |
| CN105 | A-2 |
| CN111 | A-2 |
| CN211 | F-4 |
| CN311 | F-4 |
| CN102B | A-4 |



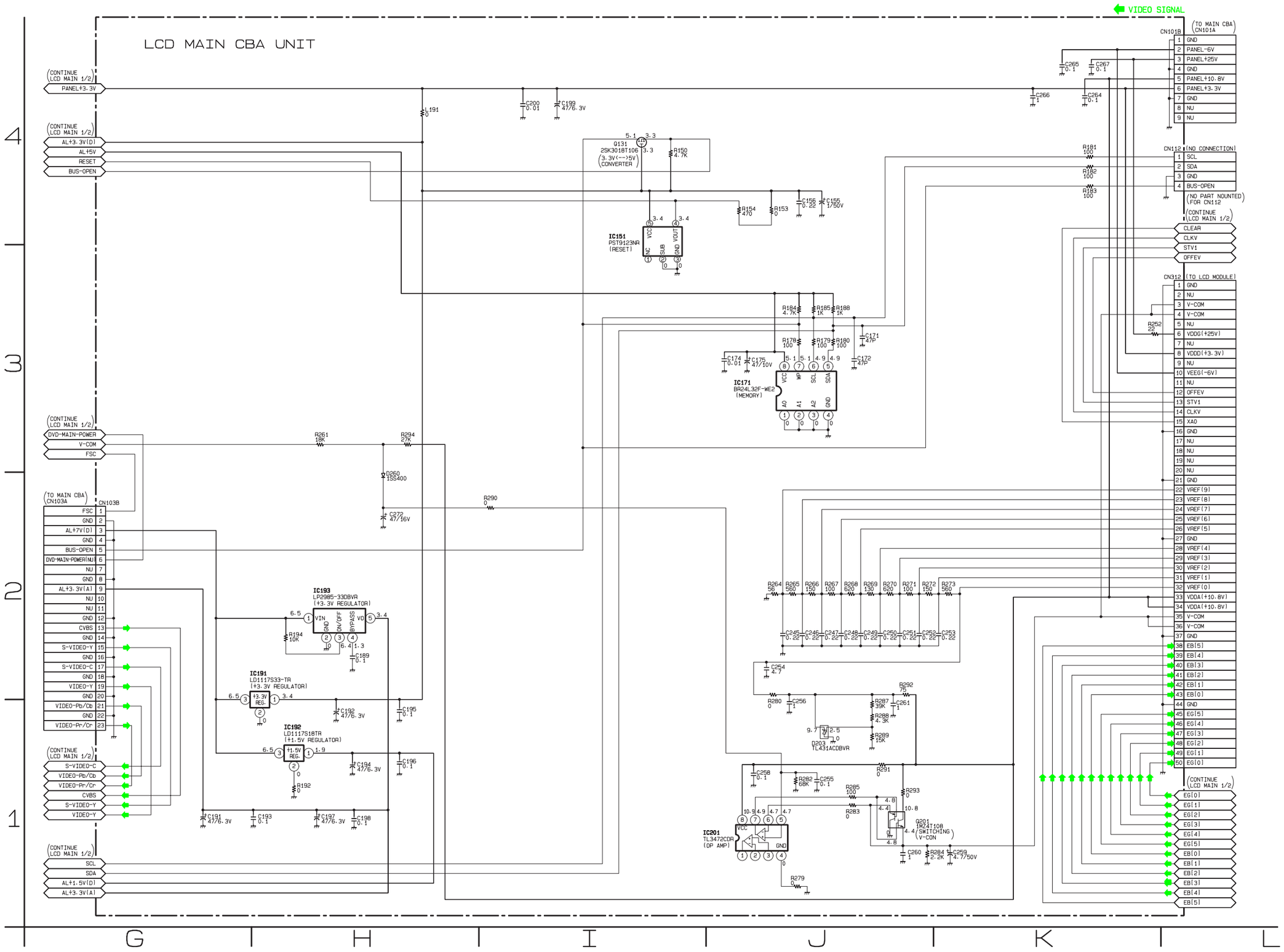



L3100SCL1

# LCD Main 2/2 Schematic Diagram

LCD MAIN 2/2

| Ref No. | Position |
|---|---|
| ICS | |
| IC151 | I-3 |
| IC171 | J-3 |
| IC191 | H-2 |
| IC192 | H-1 |
| IC193 | H-2 |
| IC201 | J-1 |
| TRANSISTORS | |
| Q131 | I-4 |
| Q201 | J-1 |
| CONNECTORS | |
| CN112 | L-4 |
| CN312 | L-3 |
| CN101B | L-4 |
| CN103B | G-2 |



# Main CBA Top View

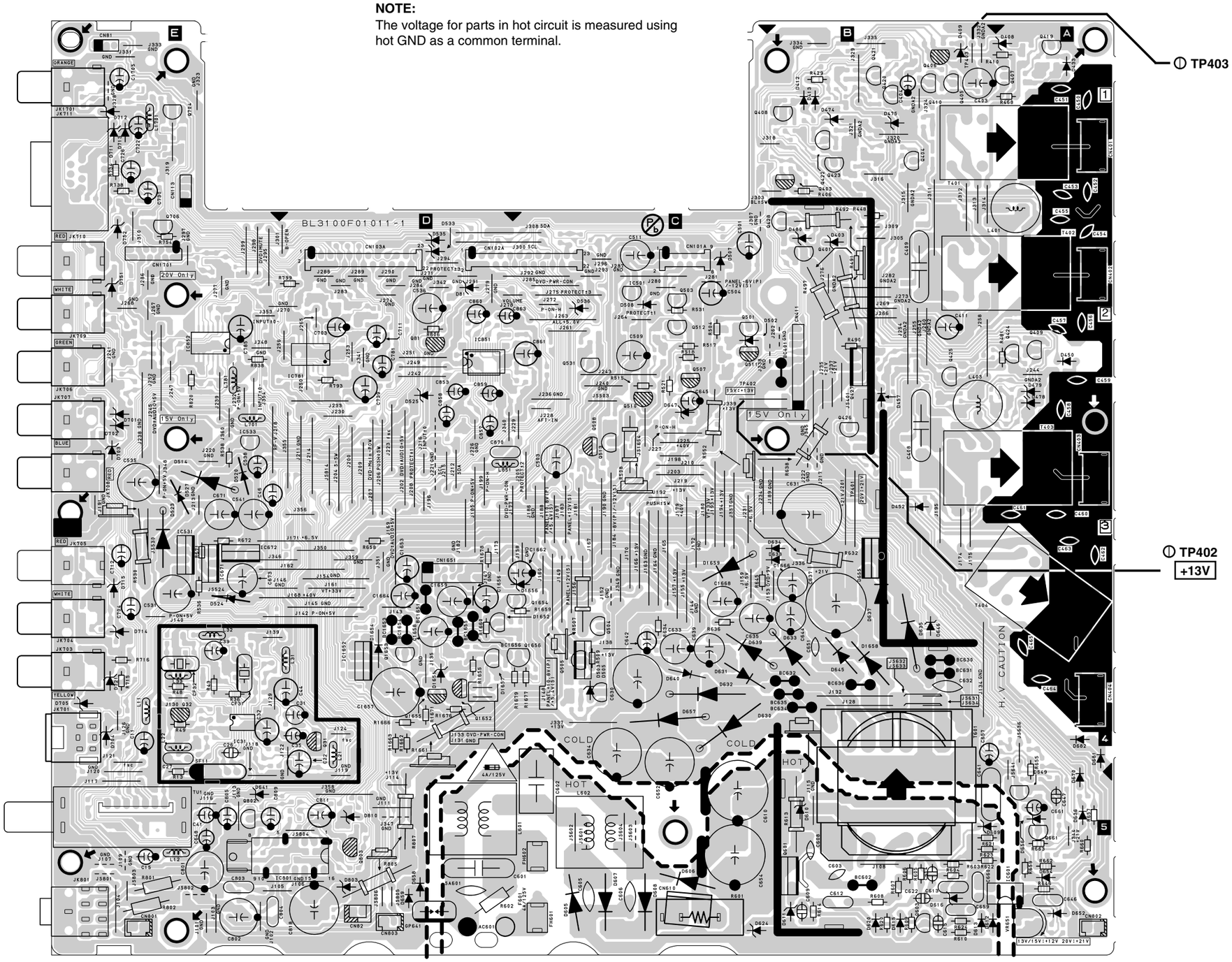
**CAUTION !**
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F601) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

4A/125V

**CAUTION ! :** For continued protection against risk of fire, replace only with same type 4 A, 125V fuse.
**ATTENTION :** Utiliser un fusible de rechange de même type de 4A, 125V.

**Because a hot chassis ground is present in the power supply circuit, an isolation transformer must be used. Also, in order to have the ability to increase the input slowly,when troubleshooting this type power supply circuit, a variable isolation transformer is required.**

**NOTE:**
The voltage for parts in hot circuit is measured using hot GND as a common terminal.



# Main CBA Bottom View

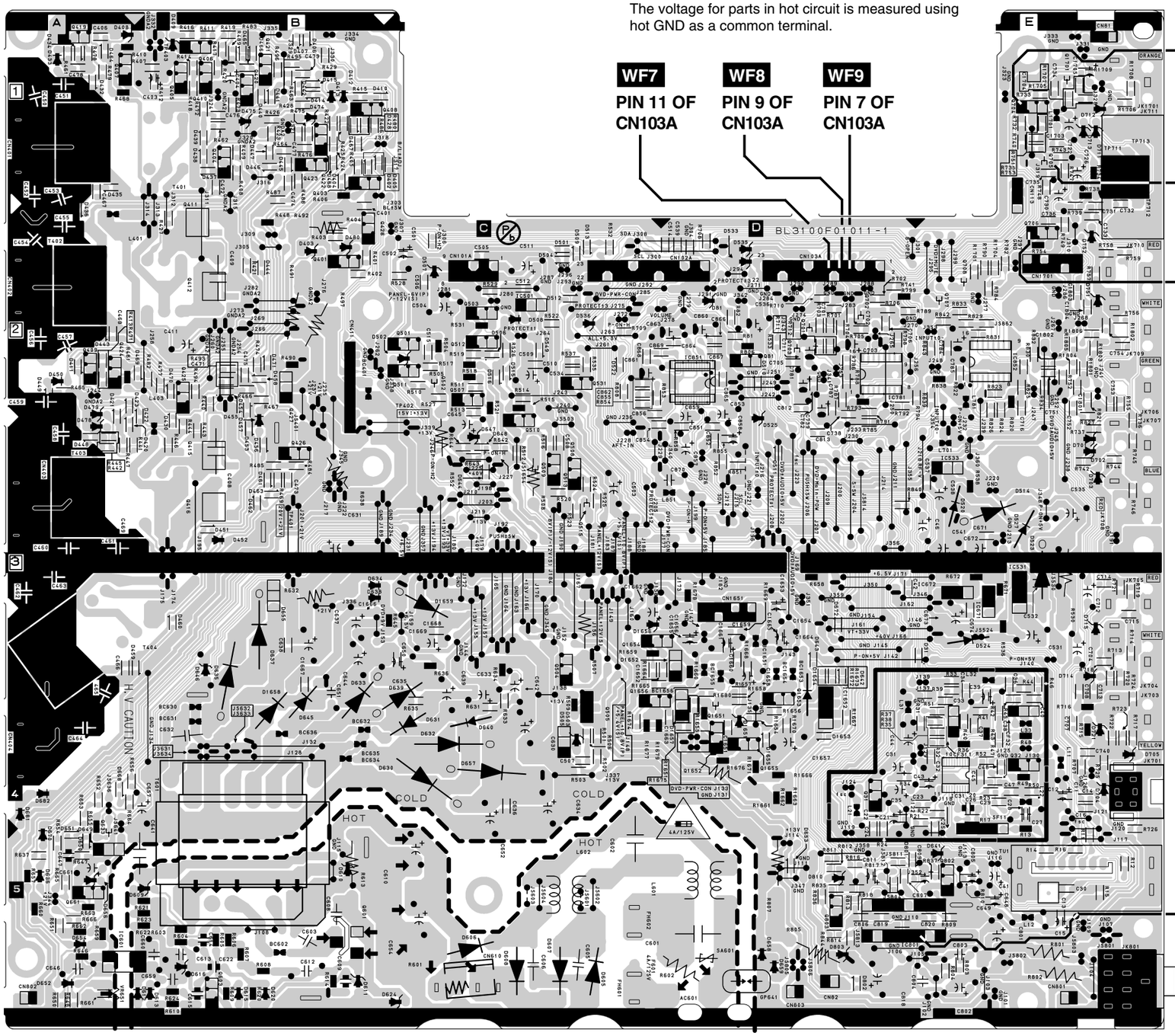
**CAUTION !**
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit. If Main Fuse (F601) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

4A/125V

**CAUTION ! :** For continued protection against risk of fire, replace only with same type 4 A, 125V fuse.
**ATTENTION :** Utiliser un fusible de rechange de même type de 4A, 125V.

**Because a hot chassis ground is present in the power supply circuit, an isolation transformer must be used. Also, in order to have the ability to increase the input slowly,when troubleshooting this type power supply circuit, a variable isolation transformer is required.**

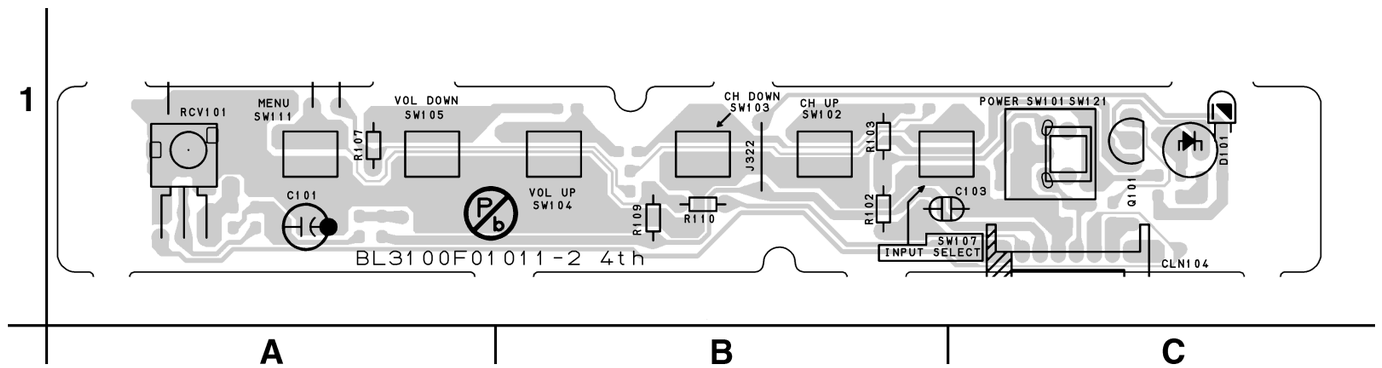
**NOTE:**
The voltage for parts in hot circuit is measured using hot GND as a common terminal.




MAIN CBA

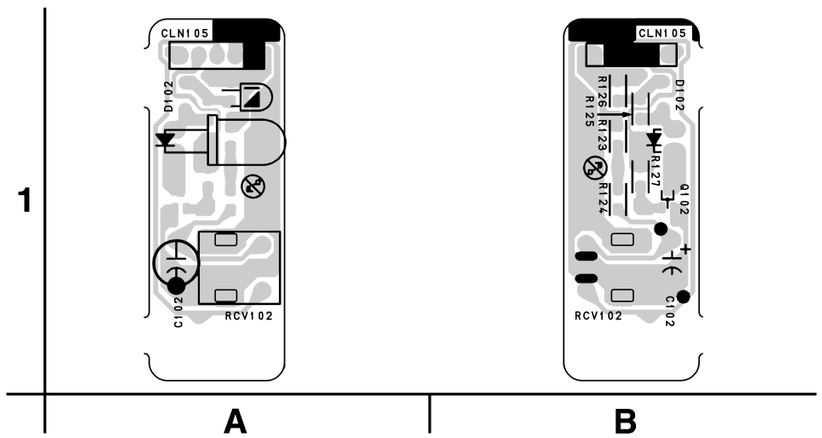
| Ref No. | Position | Ref No. | Position |
|---|---|---|---|
| ICS | | TRANSISTORS | |
| IC31 | E-4 | Q505 | C-4 |
| IC531 | E-3 | Q509 | C-3 |
| IC533 | E-3 | Q510 | C-3 |
| IC601 | A-5 | Q511 | C-2 |
| IC671 | E-4 | Q512 | C-2 |
| IC672 | E-3 | Q513 | C-3 |
| IC781 | D-2 | Q531 | C-2 |
| IC801 | D-5 | Q601 | B-5 |
| IC851 | D-2 | Q603 | B-5 |
| IC852 | E-2 | Q633 | A-5 |
| TRANSISTORS | | Q661 | A-5 |
| Q32 | E-4 | Q701 | D-2 |
| Q401 | B-2 | Q702 | D-2 |
| Q403 | B-1 | Q703 | D-2 |
| Q404 | B-1 | Q704 | E-1 |
| Q405 | B-1 | Q705 | E-1 |
| Q406 | B-1 | Q706 | E-2 |
| Q407 | A-1 | Q707 | E-2 |
| Q408 | B-1 | Q708 | E-2 |
| Q409 | A-2 | Q802 | E-5 |
| Q410 | B-1 | Q803 | D-5 |
| Q411 | B-2 | CONNECTORS | |
| Q412 | B-2 | CN113 | E-1 |
| Q415 | B-3 | CN402 | A-2 |
| Q416 | B-3 | CN403 | A-3 |
| Q421 | B-1 | CN801 | E-5 |
| Q422 | B-1 | CN802 | A-5 |
| Q423 | B-1 | CN101A | C-2 |
| Q424 | A-2 | CN102A | D-2 |
| Q427 | B-2 | CN103A | D-2 |
| Q428 | B-2 | TEST POINTS | |
| Q501 | C-2 | TP402 | C-2 |
| Q502 | C-2 | TP403 | B-1 |
| Q503 | C-2 | | |

## Function CBA Top View



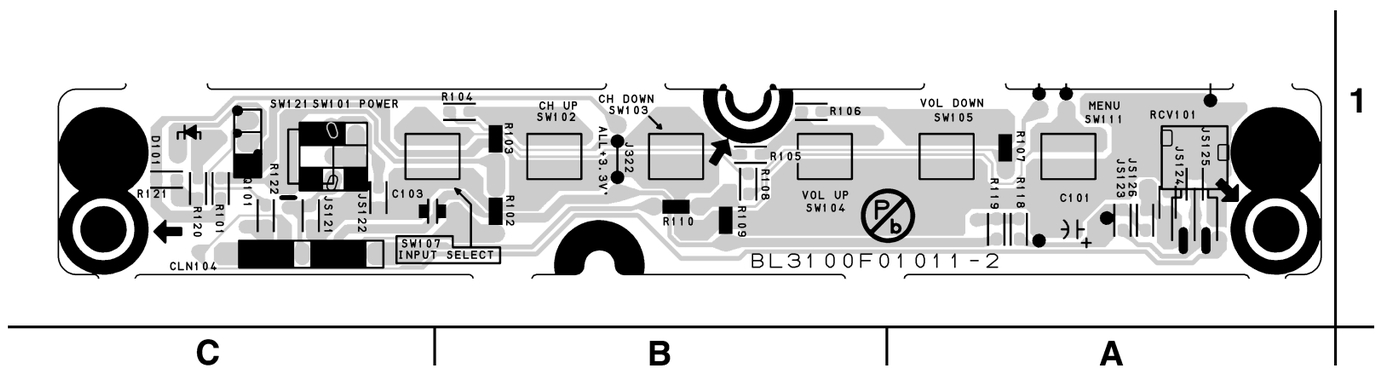

BL3100F01011-2

## IR Sensor CBA Top & Bottom View (6615LF)




BL3100F01011-3

## Function CBA Bottom View

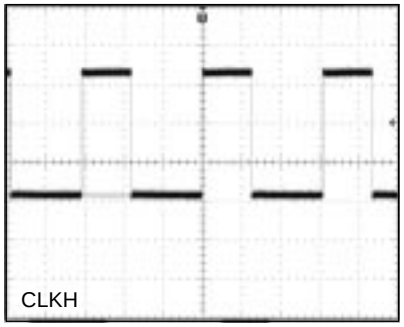



BL3100F01011-2

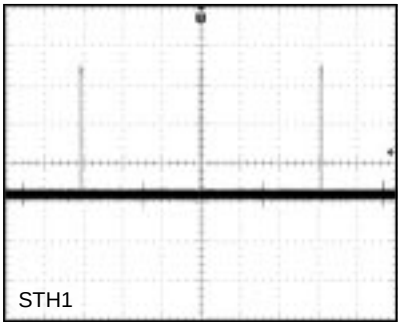
# WAVEFORMS

**WF1 ~ WF12 =** Waveforms to be observed at
Waveform check points.
(Shown in Schematic Diagram.)

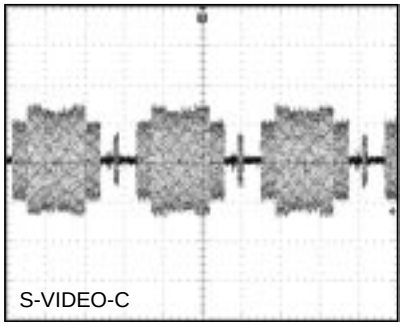
**Input:** NTSC Color Bar Signal (with 1kHz Audio Signal)



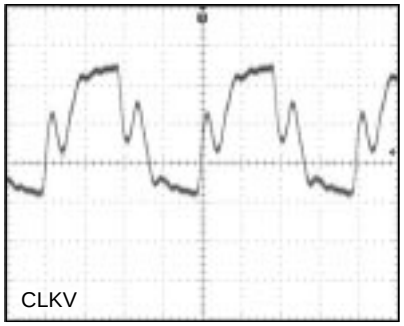

**WF1** 1DIV: 1.0V 10µs
R392



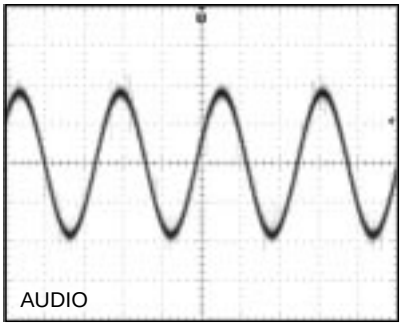

**WF5** 1DIV: 1.0V 10µs
R394



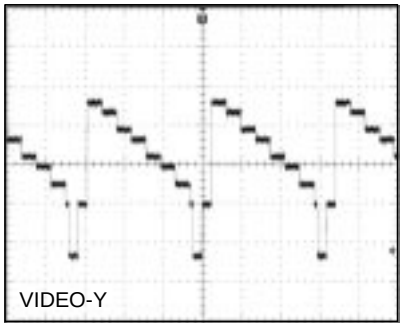

**WF9** 1DIV: 200mV 20µs
Pin 7 of CN103A



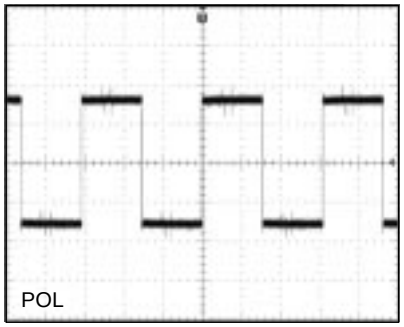

**WF2** 1DIV: 1.0V 20ns
R365



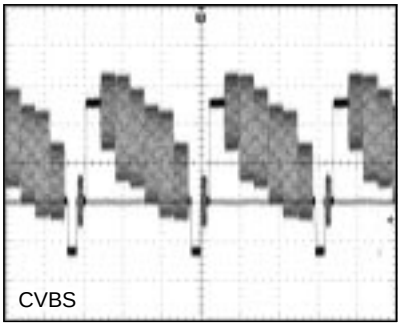

**WF6** 1DIV: 100mV 400 µs
Pin 14 of IC801



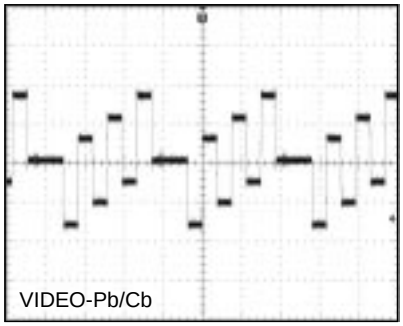

**WF10** 1DIV: 200mV 20µs
Q704 Emitter



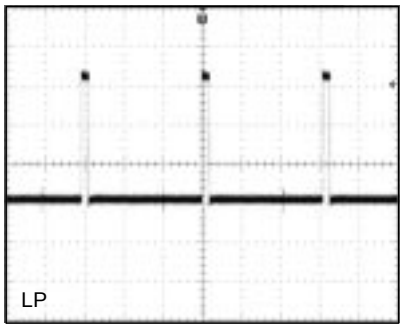

**WF3** 1DIV: 1.0V 20µs
R202



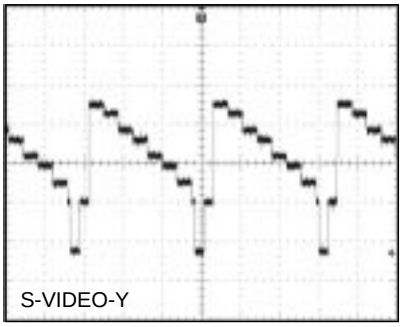

**WF7** 1DIV: 200mV 20µs
Pin 11 of CN103A



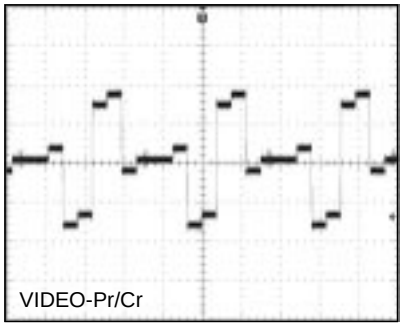

**WF11** 1DIV: 200mV 20µs
Q705 Emitter




**WF4** 1DIV: 1.0V 10µs
R201

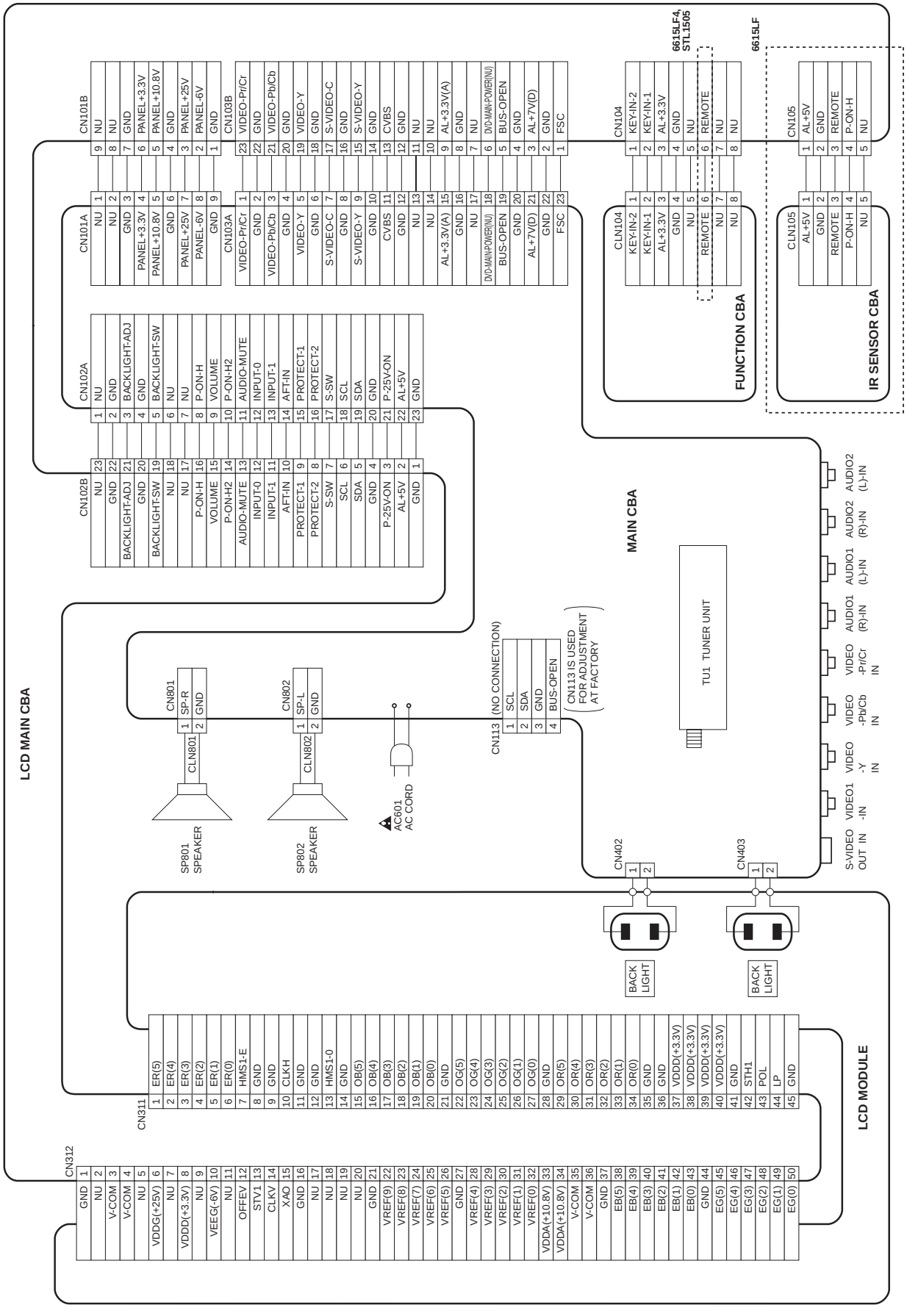



**WF8** 1DIV: 200mV 20µs
Pin 9 of CN103A




**WF12** 1DIV: 200mV 20µs
Q706 Emitter

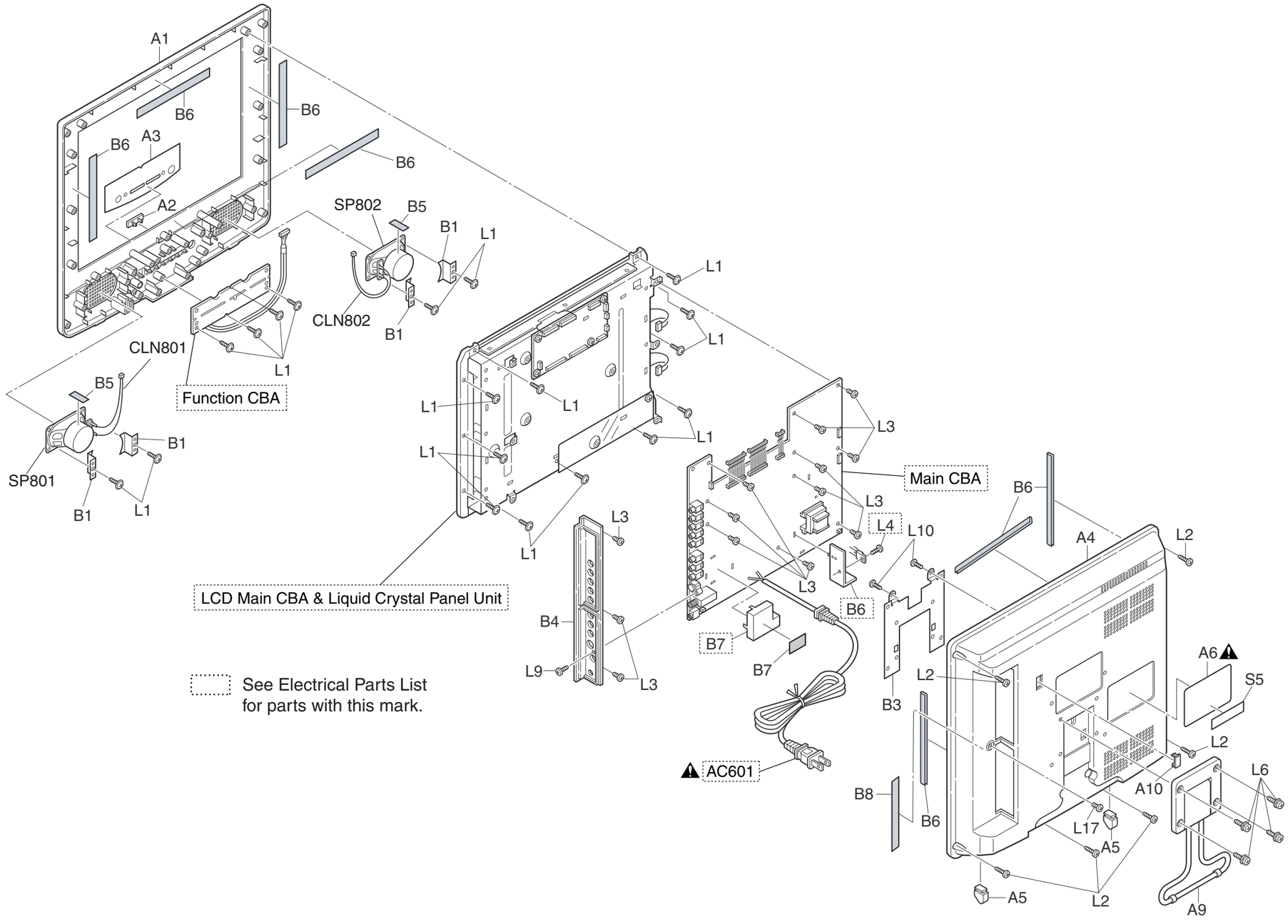
# WIRING DIAGRAM



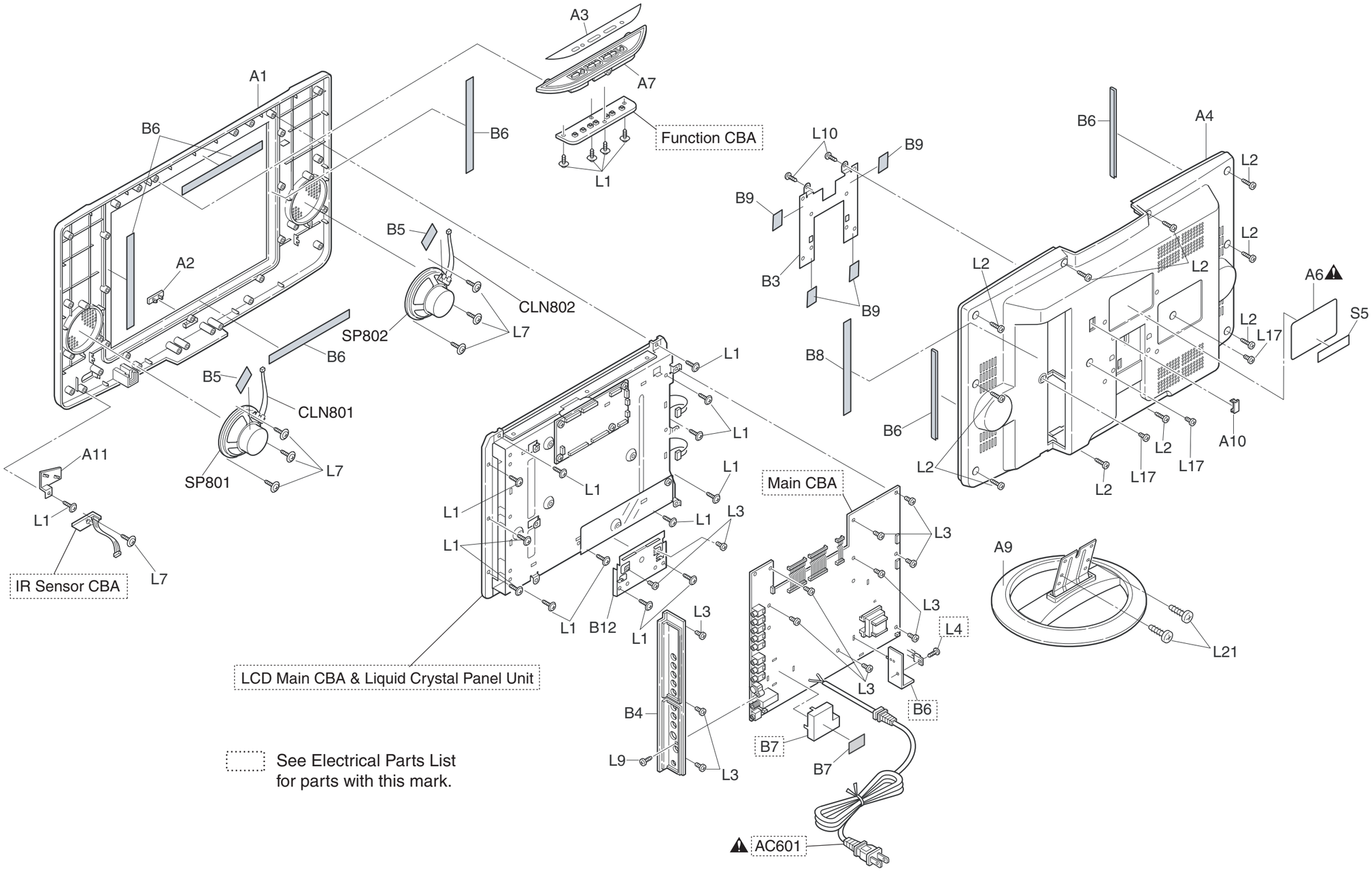
# EXPLODED VIEWS

**Cabinet**

**[ 6615LF4/STL1505 ]**



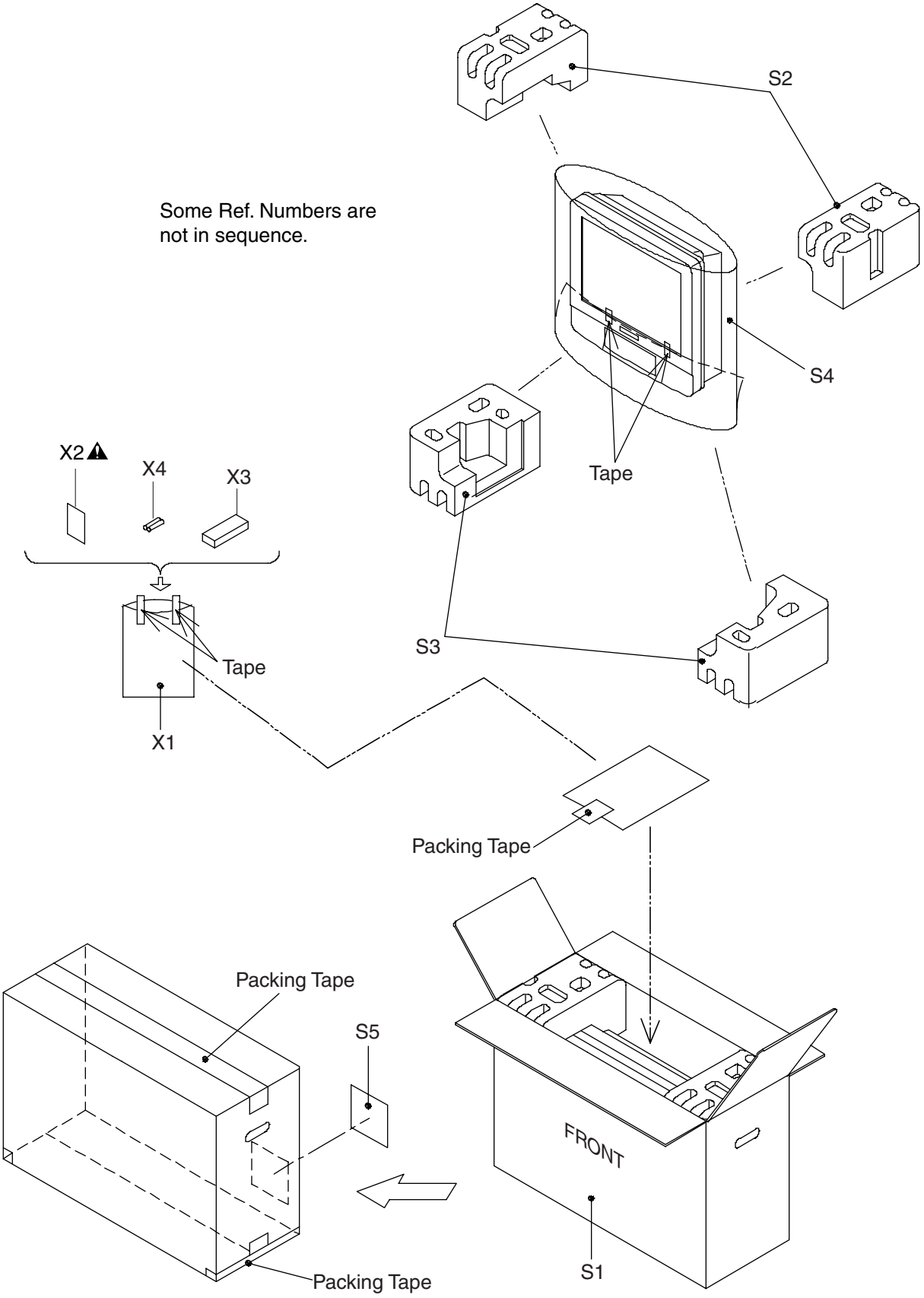
**[ 6615LF ]**



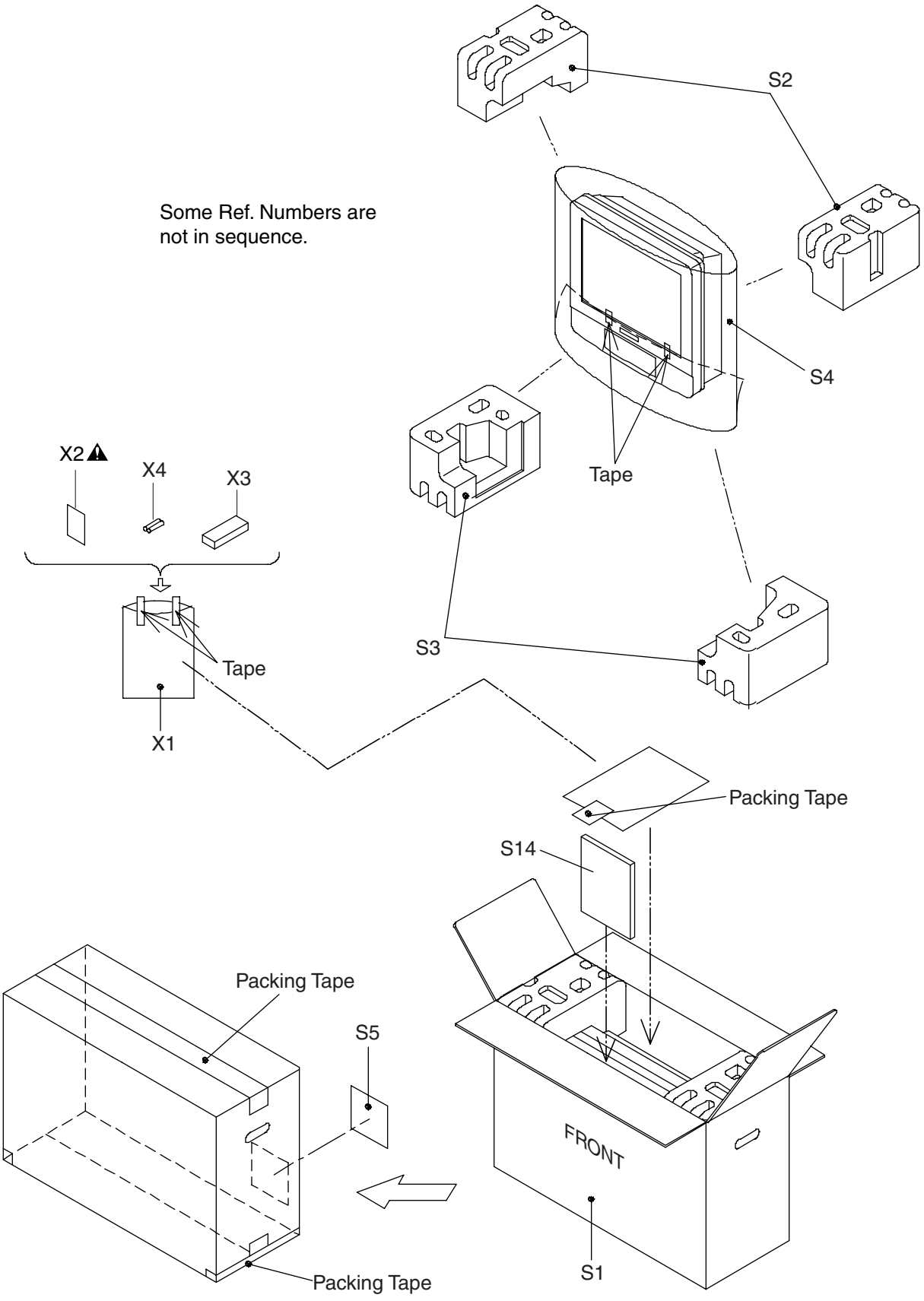

See Electrical Parts List
for parts with this mark.

## Packing

## [ 6615LF4/STL1505 ]



**[ 6615LF ]**


Some Ref. Numbers are not in sequence.
S2
S4
Tape
S3
X2 ⚠
X4
X3
Tape
X1
Packing Tape
S14
Packing Tape
S5
FRONT
S1
Packing Tape

# MECHANICAL PARTS LIST

**PRODUCT SAFETY NOTE:** Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

**NOTE:** Parts that are not assigned part numbers (---------) are not available.

### Comparison Chart of Models and Marks

| Model | Mark |
|---|---|
| 6615LF4 | A |
| STL1505 | B |
| 6615LF | C |

| Ref. No. | Mark | Description | Part No. |
|---|---|---|---|
| A1 | A,B | FRONT CABINET L0201UB | 0EM201816A |
| A1 | C | FRONT CABINET L3108UJ | 1EM220182 |
| A2 | A,C | BRAND BADGE L0200UA~SYLVANIA~ | 0EM409019 |
| A2 | B | BRAND BADGE L6509UK | 0EM408355 |
| A3 | A,B | CONTROL PLATE L0201UB | 0EM302073A |
| A3 | C | CONTROL PLATE L3107UH | 1EM320177 |
| A4 | A,B | REAR CABINET L3100UA | 1EM020145 |
| A4 | C | REAR CABINET L3107UH | 1EM020161 |
| A5 | A,B | RUUBBER FOOT L3201UB | 1EM320183 |
| A6⚠ | A | RATING LABEL L3100UA | --------- |
| A6⚠ | B | RATING LABEL L3105UF | --------- |
| A6⚠ | C | RATING LABEL L3108UJ | --------- |
| A7 | C | FUNCTION KNOB L3107UH | 1EM220101 |
| A9 | A,B | PHOTO STAND ASSEMBLY L3100UA | 1EMN20241 |
| A9 | C | TILT STAND ASSEMBLY L0110UA | 0EMN02169 |
| A10 | A,B | CONNECTOR CAP L3100UA | 1EM420655 |
| A10 | C | CONNECTOR CAP L3107UH | 1EM420711 |
| A11 | C | LED LENS L3107UH | 1EM320175 |
| B1 | A,B | SPEAKER HOLDER L0110UA | 0EM407855C |
| B3 | | STAND HOLDER L3201UB | 1EM320164 |
| B4 | | JACK HOLDER L3201UB | 1EM120107 |
| B5 | | CLOTH(10X30XT0.5) B5900UA | 0EM404486 |
| B6 | | CLOTH(10X190XT0.3) L0200UA | 1EM420019 |
| B7 | | CLOTH(20X65XT0.5) L0100JA | 0EM407914 |
| B8 | | CLOTH 10X150XT1.0 | 1EM421092 |
| B9 | C | CLOTH(15X30XT1.0) B7507UH | 0EM402452 |
| B12 | C | TILT STAND HOLDER L3107UH | 1EM320176 |
| CLN801 | A,B | SPEAKER WIRE ASSEMBLY WX1L3100-001 | WX1L3100-001 |
| CLN801 | C | SPEAKER WIRE ASSEMBLY WX1L3101-001 | WX1L3101-001 |
| CLN802 | A,B | SPEAKER WIRE ASSEMBLY WX1L3100-001 | WX1L3100-001 |
| CLN802 | C | SPEAKER WIRE ASSEMBLY WX1L3101-001 | WX1L3101-001 |
| L1 | | SCREW P-TIGHT 3X12 WASHER HEAD+ | GCMP3120 |
| L2 | | SCREW P-TIGHT 3X12 BIND HEAD+ | GBMP3120 |
| L3 | | SCREW S-TIGHT M3X8 BIND HEAD+ | GBMS3080 |
| L6 | A,B | DOUBLE SEMS SCREW M4X9 L0130UA | 0EM408146 |
| L7 | C | ASSEMBLED SCREW M3X10 | 1EM420633 |
| L9 | | SCREW P-TIGHT 3X10 BIND HEAD+ | GBKP3100 |
| L10 | | P-TIGHT SCREW 3X8 BIND + | GBMP3080 |
| L17 | | SCREW S-TIGHT M3X8 BIND HEAD + BLK | GBKS3080 |
| L21 | C | SCREW P-TIGHT 4X16 BIND HEAD + | GBMP4160 |
| SP801 | | SPEAKER S0407F10 | DSD0807XQ002 |
| SP802 | | SPEAKER S0407F10 | DSD0807XQ002 |
| **PACKING** | | | |
| S1 | A | CARTON L3100UA | 1EM420654 |
| S1 | B | CARTON L3105UF | 1EM420828 |
| S1 | C | CARTON L3108UJ | 1EM420892 |
| S2 | A,B | STYROFOAM TOP L3100UA | 1EM020146 |
| S2 | C | STYROFOAM TOP L3108UJ | 1EM020188 |
| S3 | A,B | STYROFOAM BOTTOM L3100UA | 1EM020147 |
| S3 | C | STYROFOAM BOTTOM L3108UJ | 1EM020189 |
| S4 | | SET BAG L3100UA | 1EM320214 |
| S5 | | SERIAL NO. LABEL L9750UA | --------- |
| S14 | C | STAND HOLD PAD L3108UJ | 1EM421191 |
| **ACCESSORIES** | | | |
| X1 | | BAG POLYETHYLENE 235X365XT0.03 | 0EM408420 |
| X2⚠ | A | OWNERS MANUAL L3100UA | 1EMN20242 |
| X2⚠ | B | OWNERS MANUAL L3105UF | 1EMN20255 |
| X2⚠ | C | OWNERS MANUAL L3108UJ | 1EMN20275 |
| X3 | | REMOTE CONTROL 170/ECNLC301/ NE900UD | NE900UD |
| X4 | | DRY BATTERY R03/2S | XB0M451T0006 |

# ELECTRICAL PARTS LIST

**PRODUCT SAFETY NOTE:** Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

**NOTES:**

1. Parts that are not assigned part numbers (---------) are not available.
2. Tolerance of Capacitors and Resistors are noted with the following symbols.

C.....±0.25% D.....±0.5% F.....±1%

G.....±2% J.....±5% K.....±10%

M.....±20% N.....±30% Z.....+80/-20%

**Comparison Chart of Models and Marks**

| Model | Mark |
|---|---|
| 6615LF4 | A |
| STL1505 | B |
| 6615LF | C |

## LCD MAIN CBA & LIQUID CRYSTAL PANEL UNIT

| Ref. No. | Description | Part No. |
|---|---|---|
| | LCD MAIN CBA & LIQUID CRYSTAL PANEL UNIT | 1FSA10032 |

## ANALOG MAIN CBA ASSEMBLY

| Ref. No. | Mark | Description | Part No. |
|---|---|---|---|
| | A,B<br>C | ANALOG MAIN CBA ASSEMBLY<br>ANALOG MAIN CBA ASSEMBLY<br>Consists of the following: | 1ESA10645<br>1ESA10729 |
| | <br><br>C | MAIN CBA<br>FUNCTION CBA<br>IR SENSOR CBA | ----------<br>----------<br>---------- |

### MAIN CBA

| Ref. No. | Mark | Description | Part No. |
|---|---|---|---|
| | | MAIN CBA<br>Consists of the following: | ---------- |
| | | **CAPACITORS** | |
| C11 | | ELECTROLYTIC CAP. 10μF/50V M H7 | CE1JMASSL100 |
| C12 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C13 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C14 | | CHIP CERAMIC CAP.(1608) CH J 100pF/ 50V | CHD1JJ3CH101 |
| C15 | | ELECTROLYTIC CAP. 1μF/50V M H7 | CE1JMASSL010 |
| C16 | | CHIP CERAMIC CAP.(1608) CH J 100pF/ 50V | CHD1JJ3CH101 |
| C21 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C22 | | ELECTROLYTIC CAP. 100μF/10V M H7 | CE1AMASSL101 |
| C23 | | CHIP CERAMIC CAP.(1608) CH J 1000pF/ 50V | CHD1JJ3CH102 |
| C24 | | CHIP CERAMIC CAP.(1608) CH J 1000pF/ 50V | CHD1JJ3CH102 |
| C25 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C26 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| C27 | | FILM CAP.(P) 0.018μF/50V J | CMA1JJS00183 |
| C28 | | CHIP CERAMIC CAP.(1608) B K 0.047μF/ 50V | CHD1JK30B473 |
| C29 | | CHIP CERAMIC CAP. CH D 3pF/ 50V | CHD1JD3CH3R0 |
| C30 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C31 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| C32 | | ELECTROLYTIC CAP. 100μF/10V M H7 | CE1AMASSL101 |
| C34 | | CHIP CERAMIC CAP.(1608) CH J 47pF/ 50V | CHD1JJ3CH470 |
| C35 | | ELECTROLYTIC CAP. 1μF/50V M H7 | CE1JMASSL010 |
| C36 | | CHIP CERAMIC CAP.(1608) CH J 47pF/ 50V | CHD1JJ3CH470 |
| C37 | A,B | CHIP CERAMIC CAP. B K 680pF/ 50V | CHD1JK30B681 |
| C37 | C | CHIP CERAMIC CAP. CH J 680pF/ 50V | CHD1JJ3CH681 |
| C39 | | ELECTROLYTIC CAP. 0.47μF/50V M H7 | CE1JMASSLR47 |
| C41 | | ELECTROLYTIC CAP. 4.7μF/50V M H7 | CE1JMASSL4R7 |
| C42 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C43 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C44 | | ELECTROLYTIC CAP. 100μF/10V M H7 | CE1AMASSL101 |
| C45 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C46 | | ELECTROLYTIC CAP. 47μF/16V M H7 | CE1CMASSL470 |
| C401 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C403 | | ELECTROLYTIC CAP. 220μF/16V M H7 | CE1CMASSL221 |
| C404 | | ELECTROLYTIC CAP. 2.2μF/50V M H7 | CE1JMASSL2R2 |
| C406 | | CHIP CERAMIC CAP.(1608) B K 5600pF/ 50V | CHD1JK30B562 |
| C408 | | PP CAP. 0.13μF/250V J | CT2E134MS041 |
| C409 | | PP CAP. 0.13μF/250V J | CT2E134MS041 |
| C411 | | ELECTROLYTIC CAP. 100μF/16V M H7 | CE1CMASSL101 |
| C454 | | CERAMIC CAP. SL D 10pF/ 3KV | CCD3FDASL100 |
| C455 | | CERAMIC CAP. SL D 10pF/ 3KV | CCD3FDASL100 |
| C456 | | CERAMIC CAP. SL D 10pF/ 3KV | CCD3FDASL100 |
| C457 | | CERAMIC CAP. SL D 10pF/ 3KV | CCD3FDASL100 |
| C458 | | CERAMIC CAP. SL D 10pF/ 3KV | CCD3FDASL100 |
| C459 | | CERAMIC CAP. SL D 10pF/ 3KV | CCD3FDASL100 |
| C460 | | CERAMIC CAP. SL D 10pF/ 3KV | CCD3FDASL100 |
| C461 | | CERAMIC CAP. SL D 10pF/ 3KV | CCD3FDASL100 |
| C468 | | CHIP CERAMIC CAP.(1608) B K 0.047μF/ 50V | CHD1JK30B473 |
| C469 | | CHIP CERAMIC CAP.(1608) B K 0.047μF/ 50V | CHD1JK30B473 |
| C471 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C472 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C474 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C477 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C479 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C501 | | ELECTROLYTIC CAP. 22μF/50V M H7 | CE1JMASSL220 |
| C502 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C503 | | ELECTROLYTIC CAP. 220μF/16V M H7 | CE1CMASSL221 |
| C504 | | ELECTROLYTIC CAP. 100μF/10V M H7 | CE1AMASSL101 |

| Ref. No. | Mark | Description | Part No. |
|---|---|---|---|
| C505 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C506 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C507 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C508 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C515 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C531 | | ELECTROLYTIC CAP. 330μF/50V M | CE1JMASDL331 |
| C532 | | CHIP CERAMIC CAP.(1608) B K 0.22μF/ 25V | CHD1EK30B224 |
| C534 | | CHIP CERAMIC CAP. B K 1μF/16V | CHD1CK30B105 |
| C535 | | ELECTROLYTIC CAP. 470μF/16V M | CE1CMASDL471 |
| C537 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C538 | | ELECTROLYTIC CAP. 10μF/50V M H7 | CE1JMASSL100 |
| C539 | | CHIP CERAMIC CAP.(1608) CH J 100pF/ 50V | CHD1JJ3CH101 |
| C601⚠ | | METALLIZED FILM CAP. 0.1μF/250V | CT2E104MS037 |
| C602⚠ | | METALLIZED FILM CAP. 0.22μF/250V | CT2E224MS037 |
| C605 | A,B | CERAMIC CAP. B K 0.01μF/500V | CCD2JKP0B103 |
| C605 | C | CERAMIC CAP. F Z 0.01μF/500V | CCD2JZP0F103 |
| C606 | A,B | CERAMIC CAP. B K 0.01μF/500V | CCD2JKP0B103 |
| C606 | C | CERAMIC CAP. F Z 0.01μF/500V | CCD2JZP0F103 |
| C608 | | CERAMIC CAP. B K 1000pF/ 2KV | CCD3DKP0B102 |
| C610⚠ | | ELECTROLYTIC CAP. 100μF/200V M | CE2DMZPDL101 |
| C612 | | FILM CAP.(P) 0.01μF/50V J | CMA1JJS00103 |
| C613 | | FILM CAP.(P) 0.056μF/50V J | CMA1JJS00563 |
| C614 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| C615 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| C630⚠ | | ELECTROLYTIC CAP. 2200μF/25V M | CE1EMZPDL222 |
| C633⚠ | | ELECTROLYTIC CAP. 220μF/16V M H7 | CE1CMASSL221 |
| C634⚠ | | ELECTROLYTIC CAP. 1000μF/25V M | CE1EMZNTL102 |
| C635⚠ | | ELECTROLYTIC CAP. 470μF/10V M | CE1AMASTL471 |
| C636 | | CHIP CERAMIC CAP.(1608) B K 0.1μF/ 50V | CHD1JK30B104 |
| C641⚠ | | SAFETY CAP. 4700pF/ 250V KX | CA2E472MR050 |
| C642⚠ | | ELECTROLYTIC CAP. 10μF/50V M H7 | CE1JMASSL100 |
| C644⚠ | | ELECTROLYTIC CAP. 100μF/50V M | CE1JMASTL101 |
| C645⚠ | | ELECTROLYTIC CAP. 10μF/50V M H7 | CE1JMASSL100 |
| C646 | | MYLAR CAP. 0.22μF/50V J | CMA1JJS00224 |
| C648 | | ELECTROLYTIC CAP. 1μF/50V M H7 | CE1JMASSL010 |
| C649 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C650 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C652⚠ | | ELECTROLYTIC CAP. 1000μF/25V M | CE1EMZNTL102 |
| C654⚠ | | ELECTROLYTIC CAP. 100μF/200V M | CE2DMZPDL101 |
| C657 | | ELECTROLYTIC CAP. 47μF/16V M H7 | CE1CMASSL470 |
| C659 | | FILM CAP.(P) 0.022μF/50V J | CMA1JJS00223 |
| C660 | | FILM CAP.(P) 0.0068μF/50V J | CMA1JJS00682 |
| C661 | | ELECTROLYTIC CAP. 4.7μF/50V M H7 | CE1JMASSL4R7 |
| C671 | | ELECTROLYTIC CAP. 470μF/10V M | CE1AMASTL471 |
| C672 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C673 | | ELECTROLYTIC CAP. 470μF/10V M | CE1AMASTL471 |
| C674 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C701 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C702 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C703 | | ELECTROLYTIC CAP. 47μF/16V M H7 | CE1CMASSL470 |
| C704 | | ELECTROLYTIC CAP. 47μF/16V M H7 | CE1CMASSL470 |
| C705 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |

| Ref. No. | Mark | Description | Part No. |
|---|---|---|---|
| C706 | | CHIP CERAMIC CAP.(1608) CH J 1000pF/ 50V | CHD1JJ3CH102 |
| C707 | | CHIP CERAMIC CAP.(1608) CH J 1000pF/ 50V | CHD1JJ3CH102 |
| C708 | | CHIP CERAMIC CAP.(1608) CH J 100pF/ 50V | CHD1JJ3CH101 |
| C711 | | ELECTROLYTIC CAP. 47μF/16V M H7 | CE1CMASSL470 |
| C712 | | ELECTROLYTIC CAP. 47μF/16V M H7 | CE1CMASSL470 |
| C713 | | CHIP CERAMIC CAP.(1608) B K 3300pF/ 50V | CHD1JK30B332 |
| C714 | | CHIP CERAMIC CAP. F Z 2.2μF/10V | CHD1AZ30F225 |
| C715 | | CHIP CERAMIC CAP.(1608) B K 3300pF/ 50V | CHD1JK30B332 |
| C716 | | CHIP CERAMIC CAP. F Z 2.2μF/10V | CHD1AZ30F225 |
| C722 | | ELECTROLYTIC CAP. 47μF/16V M H7 | CE1CMASSL470 |
| C726 | | ELECTROLYTIC CAP. 47μF/16V M H7 | CE1CMASSL470 |
| C730 | | ELECTROLYTIC CAP. 47μF/16V M H7 | CE1CMASSL470 |
| C734 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C735 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C736 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C738 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C739 | | ELECTROLYTIC CAP. 100μF/10V M H7 | CE1AMASSL101 |
| C740 | | CHIP CERAMIC CAP.(1608) CH J 100pF/ 50V | CHD1JJ3CH101 |
| C751 | | CHIP CERAMIC CAP. F Z 2.2μF/10V | CHD1AZ30F225 |
| C752 | | CHIP CERAMIC CAP. F Z 2.2μF/10V | CHD1AZ30F225 |
| C753 | | CHIP CERAMIC CAP.(1608) B K 3300pF/ 50V | CHD1JK30B332 |
| C754 | | CHIP CERAMIC CAP.(1608) B K 3300pF/ 50V | CHD1JK30B332 |
| C781 | | ELECTROLYTIC CAP. 10μF/50V M H7 | CE1JMASSL100 |
| C782 | | CHIP CERAMIC CAP.(1608) B K 0.1μF/ 50V | CHD1JK30B104 |
| C784 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C785 | | ELECTROLYTIC CAP. 100μF/10V M H7 | CE1AMASSL101 |
| C787 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C801 | | ELECTROLYTIC CAP. 470μF/16V M | CE1CMASDL471 |
| C802 | | ELECTROLYTIC CAP. 470μF/16V M | CE1CMASDL471 |
| C803 | | FILM CAP.(P) 0.1μF/50V J | CMA1JJS00104 |
| C804 | | FILM CAP.(P) 0.1μF/50V J | CMA1JJS00104 |
| C805 | | ELECTROLYTIC CAP. 10μF/50V M H7 | CE1JMASSL100 |
| C806 | | CHIP CERAMIC CAP. F Z 1μF/10V | CHD1AZ30F105 |
| C807 | | CHIP CERAMIC CAP. F Z 1μF/10V | CHD1AZ30F105 |
| C809 | | ELECTROLYTIC CAP. 4.7μF/50V M H7 | CE1JMASSL4R7 |
| C811 | | ELECTROLYTIC CAP. 100μF/16V M H7 | CE1CMASSL101 |
| C812 | | CHIP CERAMIC CAP. F Z 1μF/10V | CHD1AZ30F105 |
| C813 | | CHIP CERAMIC CAP. F Z 1μF/10V | CHD1AZ30F105 |
| C818 | | ELECTROLYTIC CAP. 2200μF/16V M | CE1CMZPDL222 |
| C819 | | CHIP CERAMIC CAP. B K 2200pF/ 50V | CHD1JK30B222 |
| C820 | | CHIP CERAMIC CAP. B K 2200pF/ 50V | CHD1JK30B222 |
| C851 | | CHIP CERAMIC CAP.(1608) CH J 100pF/ 50V | CHD1JJ3CH101 |
| C852 | | CHIP CERAMIC CAP.(1608) CH J 100pF/ 50V | CHD1JJ3CH101 |
| C853 | | ELECTROLYTIC CAP. 2.2μF/50V M H7 | CE1JMASSL2R2 |
| C854 | | CHIP CERAMIC CAP.(1608) B K 0.1μF/ 50V | CHD1JK30B104 |
| C855 | | CHIP CERAMIC CAP.(1608) B K 0.1μF/ 50V | CHD1JK30B104 |
| C856 | | CHIP CERAMIC CAP.(1608) B K 0.33μF/ 10V | CHD1AK30B334 |
| C857 | | ELECTROLYTIC CAP. 2.2μF/50V M H7 | CE1JMASSL2R2 |
| C858 | | ELECTROLYTIC CAP. 2.2μF/50V M H7 | CE1JMASSL2R2 |
| C859 | | ELECTROLYTIC CAP. 4.7μF/50V M H7 | CE1JMASSL4R7 |

| Ref. No. | Mark | Description | Part No. |
|---|---|---|---|
| C860 | | ELECTROLYTIC CAP. 10μF/50V M H7 | CE1JMASSL100 |
| C861 | | ELECTROLYTIC CAP. 100μF/10V M H7 | CE1AMASSL101 |
| C862 | | CHIP CERAMIC CAP.(1608) B K 0.01μF/ 50V | CHD1JK30B103 |
| C863 | | ELECTROLYTIC CAP. 2.2μF/50V M H7 | CE1JMASSL2R2 |
| C864 | | CHIP CERAMIC CAP.(1608) B K 0.022μF/ 50V | CHD1JK30B223 |
| C865 | | CHIP CERAMIC CAP.(1608) B K 0.1μF/ 50V | CHD1JK30B104 |
| C866 | | CHIP CERAMIC CAP. F Z 2.2μF/10V | CHD1AZ30F225 |
| C867 | | CHIP CERAMIC CAP. F Z 2.2μF/10V | CHD1AZ30F225 |
| C868 | | CHIP CERAMIC CAP. B K 1μF/16V | CHD1CK30B105 |
| C869 | | CHIP CERAMIC CAP.(1608) B K 0.022μF/ 50V | CHD1JK30B223 |
| **CONNECTORS** | | | |
| CN113 | | PH CONNECTOR (WHITE) TOP 4P B4B-PH-K-S(LF) | J3PHC04JG017 |
| CN402 | | BACK LIGHT CONNECTOR 1717369-1 | JB17D02AP001 |
| CN403 | | BACK LIGHT CONNECTOR 1717369-1 | JB17D02AP001 |
| CN801 | | STRAIGHT CONNECTOR BASE 00 8283 0212 00 000 | J383C02UG002 |
| CN802 | | STRAIGHT CONNECTOR BASE 00 8283 0212 00 000 | J383C02UG002 |
| CN101A | | TWG CONNECTOR 09P TWG-P09P-A1 | J3TWA09TG001 |
| CN102A | | TWG CONNECTOR 23P TWG-P23P-A1 | J3TWA23TG001 |
| CN103A | | TWG CONNECTOR 23P TWG-P23P-A1 | J3TWA23TG001 |
| **DIODES** | | | |
| D31 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D402 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D403⚠ | | ZENER DIODE MTZJT-779.1B | QDTB0MTZJ9R1 |
| D404⚠ | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D405⚠ | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D406⚠ | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D407⚠ | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D408 | | ZENER DIODE MTZJT-7710B | QDTB00MTZJ10 |
| D409 | | ZENER DIODE MTZJT-776.2B | QDTB0MTZJ6R2 |
| D410 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D411 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D412⚠ | | SWITCHING DIODE 1SS133(T-77) | QDTZ001SS133 |
| D413⚠ | | SWITCHING DIODE 1SS133(T-77) | QDTZ001SS133 |
| D414 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D415 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D420⚠ | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D421⚠ | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D422 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D423 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D428 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D430 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D440 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D441 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D442 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D443 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D444 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D445 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D446 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D447 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D448 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D449 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D450 | | SWITCHING DIODE 1SS133(T-77) | QDTZ001SS133 |
| D451 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D452 | | SWITCHING DIODE 1SS133(T-77) | QDTZ001SS133 |
| D453 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D454 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D455 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D466 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |

| Ref. No. | Mark | Description | Part No. |
|---|---|---|---|
| D467 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D468 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D469 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D480 | | ZENER DIODE MTZJT-779.1B | QDTB0MTZJ9R1 |
| D501⚠ | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D502 | | ZENER DIODE MTZJT-7727B | QDTB00MTZJ27 |
| D504 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D505 | | IC SHUNT REGULATOR KIA431-AT | NSZLA0TJY001 |
| D506 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D507 | | ZENER DIODE MTZJT-776.2B | QDTB0MTZJ6R2 |
| D510 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D511 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D512 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D513 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D514 | | SCHOTTKY BARRIER DIODE ERC81-004 | QDPZERC81004 |
| D515 | | CHIP RES.(1608) 1/10W 0 Ω | RRXAZR5Z0000 |
| D520 | | SCHOTTKY BARRIER DIODE 11EQS04 | QD4Z011EQS04 |
| D522 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D523 | | SCHOTTKY BARRIER DIODE ERC81-004 | QDPZERC81004 |
| D525 | | ZENER DIODE MTZJT-7710B | QDTB00MTZJ10 |
| D527 | | SCHOTTKY BARRIER DIODE 11EQS04 | QD4Z011EQS04 |
| D535 | | ZENER DIODE MTZJT-773.9B | QDTB0MTZJ3R9 |
| D605⚠ | | DIODE 1N5397-B | NDLZ001N5397 |
| D606⚠ | | DIODE 1N5397-B | NDLZ001N5397 |
| D607⚠ | | DIODE 1N5397-B | NDLZ001N5397 |
| D608⚠ | | DIODE 1N5397-B | NDLZ001N5397 |
| D609 | | ZENER DIODE MTZJT-775.6B | QDTB0MTZJ5R6 |
| D611⚠ | | ZENER DIODE MTZJT-7722B | QDTB00MTZJ22 |
| D612 | | SWITCHING DIODE 1SS133(T-77) | QDTZ001SS133 |
| D613 | | SWITCHING DIODE 1SS133(T-77) | QDTZ001SS133 |
| D615 | | SWITCHING DIODE 1SS133(T-77) | QDTZ001SS133 |
| D616⚠ | | ZENER DIODE MTZJT-7733B | QDTB00MTZJ33 |
| D620 | | SWITCHING DIODE 1SS133(T-77) | QDTZ001SS133 |
| D624⚠ | | ZENER DIODE MTZJT-7733B | QDTB00MTZJ33 |
| D630⚠ | | SCHOTTKY BARRIER DIODE ERC84-009 | QDLZERC84009 |
| D631⚠ | | DIODE FR154 | NDLZ000FR154 |
| D632 | | SCHOTTKY BARRIER DIODE ERC84-009 | QDLZERC84009 |
| D633⚠ | | SCHOTTKY BARRIER DIODE ERC81-004 | QDPZERC81004 |
| D636 | | SWITCHING DIODE 1SS133(T-77) | QDTZ001SS133 |
| D639⚠ | | SCHOTTKY BARRIER DIODE ERC81-004 | QDPZERC81004 |
| D640⚠ | | DIODE FR104-B | NDLZ000FR104 |
| D641 | | ZENER DIODE MTZJT-7733C | QDTC00MTZJ33 |
| D642 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D643 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D644⚠ | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D645⚠ | | DIODE FR154 | NDLZ000FR154 |
| D646⚠ | | DIODE 1ZC43 | QDQZ0001ZC43 |
| D647 | | ZENER DIODE MTZJT-7739B | QDTB00MTZJ39 |
| D648⚠ | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D649⚠ | | IC SHUNT REGULATOR KIA431-AT | NSZLA0TJY001 |
| D650 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D651 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D652 | | SWITCHING DIODE 1SS133(T-77) | QDTZ001SS133 |
| D653 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D658 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| D659 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| D668 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D672 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D681 | | SWITCHING DIODE 1SS133(T-77) | QDTZ001SS133 |

| Ref. No. | Mark | Description | Part No. |
|---|---|---|---|
| D682 | | SWITCHING DIODE 1SS133(T-77) | QDTZ001SS133 |
| D701 | | ZENER DIODE MTZJT-778.2B | QDTB0MTZJ8R2 |
| D702 | | ZENER DIODE MTZJT-778.2B | QDTB0MTZJ8R2 |
| D703 | | ZENER DIODE MTZJT-778.2B | QDTB0MTZJ8R2 |
| D801 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D802 | | SWITCHING DIODE 1SS400 | QD1Z001SS400 |
| D803 | | ZENER DIODE MTZJT-776.2B | QDTB0MTZJ6R2 |
| D810 | | ZENER DIODE MTZJT-773.3B | QDTB0MTZJ3R3 |
| **ICS** | | | |
| IC31 | | IC VIF/SIF M61116FP TF0G | QSZBA0SHT034 |
| IC531⚠ | | IC REGULATOR KA78R08C | NSZBA0SF3119 |
| IC533 | | IC NJM78L05 | QSBLA0ZJR034 |
| IC601⚠ | | PHOTOCOUPLER PS2501-1W | QPEW0PS25011 |
| IC671 | | VOLTAGE REGULATOR KIA7805API | NSBBA0SJY011 |
| IC672 | | VOLTAGE REGULATOR KIA7805API | NSBBA0SJY011 |
| IC781 | | IC TC4053BF(EL.N) | QSZBA0TTS131 |
| IC801 | | IC AN17812A | QSZBA0SMS017 |
| IC851 | | IC MTS DECORDER AN5832SA-E1 | QSZBA0TMS003 |
| IC852 | | IC SWITCHING TC4052BF(EL) | QSZBA0TTS096 |
| **COILS** | | | |
| L11 | | INDUCTOR 22μH-K-5FT | LLARKBSTU220 |
| L12 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| L21 | | INDUCTOR 100μH-K-5FT | LLARKBSTU101 |
| L22 | | INDUCTOR 150μH-J-26T | LLAXJATTU151 |
| L31 | | INDUCTOR 22μH-K-5FT | LLARKBSTU220 |
| L32 | | INDUCTOR 18μH-J-26T | LLAXJATTU180 |
| L401 | | CHOKE COIL ELC10D330E | LLC330KMS003 |
| L403 | | CHOKE COIL ELC10D330E | LLC330KMS003 |
| L601⚠ | | LINE FILTER TLF14CB3321R0 | LLBG00ZTU012 |
| L701 | | INDUCTOR 22μH-K-5FT | LLARKBSTU220 |
| L781 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| L851 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| **TRANSISTORS** | | | |
| Q32 | | TRANSISTOR 2SA1175(F) | QQSF02SA1175 |
| Q401⚠ | | TRANSISTOR 2SC2120-O-TPE2 | QQS002SC2120 |
| Q403 | | RES. BUILT-IN TRANSISTOR BA1F4M-T | QQSZ00BA1F4M |
| Q404 | | TRANSISTOR 2SC2785(F) | QQSF02SC2785 |
| Q405 | | TRANSISTOR 2SC2785(F) | QQSF02SC2785 |
| Q406 | | TRANSISTOR 2SA1175(F) | QQSF02SA1175 |
| Q407 | | TRANSISTOR 2SC2120-O-TPE2 | QQS002SC2120 |
| Q408 | | TRANSISTOR 2SC2785(F) | QQSF02SC2785 |
| Q409 | | TRANSISTOR 2SC2785(F) | QQSF02SC2785 |
| Q410 | | TRANSISTOR 2SC2785(F) | QQSF02SC2785 |
| Q411⚠ | | MOS FET 2SK2231 | QF1Z2SK2231Q |
| Q412⚠ | | MOS FET 2SK2231 | QF1Z2SK2231Q |
| Q415⚠ | | MOS FET 2SK2231 | QF1Z2SK2231Q |
| Q416⚠ | | MOS FET 2SK2231 | QF1Z2SK2231Q |
| Q421 | | TRANSISTOR 2SC2785(F) | QQSF02SC2785 |
| Q422 | | TRANSISTOR 2SC2785(F) | QQSF02SC2785 |
| Q423 | | TRANSISTOR 2SC2785(F) | QQSF02SC2785 |
| Q424 | | TRANSISTOR 2SC2785(F) | QQSF02SC2785 |
| Q427 | | TRANSISTOR 2SA1887 | QQWZ02SA1887 |
| Q428 | | TRANSISTOR 2SC2120-O-TPE2 | QQS002SC2120 |
| Q501 | | TRANSISTOR 2SC2785(F) | QQSF02SC2785 |
| Q502 | | TRANSISTOR 2SA1576A T106R | QQ1R2SA1576A |
| Q503 | | TRANSISTOR 2SC2785(F) | QQSF02SC2785 |
| Q505 | | TRANSISTOR 2SC2120-O-TPE2 | QQS002SC2120 |
| Q509 | | TRANSISTOR 2SA1576A T106R | QQ1R2SA1576A |
| Q510 | | TRANSISTOR 2SA1175(F) | QQSF02SA1175 |
| Q511 | | RES. BUILT-IN TRANSISTOR BA1F4M-T | QQSZ00BA1F4M |
| Q512 | | TRANSISTOR 2SC2120-O-TPE2 | QQS002SC2120 |
| Q513 | | TRANSISTOR 2SC2785(F) | QQSF02SC2785 |

| Ref. No. | Mark | Description | Part No. |
|---|---|---|---|
| Q531 | | TRANSISTOR 2SC2120-O-TPE2 | QQS002SC2120 |
| Q601⚠ | | FET 2SK3869(Q) | QFWZ2SK3869Q |
| Q603⚠ | | TRANSISTOR 2SC2120-O-TPE2 | QQS002SC2120 |
| Q633 | | TRANSISTOR 2SC4081 T106 Q | QQ1Q02SC4081 |
| Q661 | | TRANSISTOR 2SC2785(F) | QQSF02SC2785 |
| Q701 | | TRANSISTOR 2SC4081 T106 Q | QQ1Q02SC4081 |
| Q702 | | TRANSISTOR 2SC4081 T106 Q | QQ1Q02SC4081 |
| Q703 | | TRANSISTOR 2SC4081 T106 Q | QQ1Q02SC4081 |
| Q704 | | TRANSISTOR 2SC2785(F) | QQSF02SC2785 |
| Q705 | | TRANSISTOR 2SC4081 T106 Q | QQ1Q02SC4081 |
| Q706 | | TRANSISTOR 2SC2785(F) | QQSF02SC2785 |
| Q707 | | TRANSISTOR 2SC4081 T106 Q | QQ1Q02SC4081 |
| Q708 | | TRANSISTOR 2SC4081 T106 Q | QQ1Q02SC4081 |
| Q802 | | TRANSISTOR 2SC2785(F) | QQSF02SC2785 |
| Q803 | | TRANSISTOR 2SA1175(F) | QQSF02SA1175 |
| **RESISTORS** | | | |
| R11 | | CHIP RES.(1608) 1/10W J 100 Ω | RRXAJR5Z0101 |
| R12 | | CHIP RES.(1608) 1/10W J 100 Ω | RRXAJR5Z0101 |
| R13 | | INDUCTOR 0.47μH-J-26T | LLAXJATTUR47 |
| R15 | | CHIP RES.(1608) 1/10W J 4.7k Ω | RRXAJR5Z0472 |
| R21 | | CHIP RES.(1608) 1/10W J 270k Ω | RRXAJR5Z0274 |
| R23 | | CHIP RES.(1608) 1/10W J 2.2k Ω | RRXAJR5Z0222 |
| R24 | | CHIP RES.(1608) 1/10W J 820k Ω | RRXAJR5Z0824 |
| R34 | | CHIP RES.(1608) 1/10W 0 Ω | RRXAZR5Z0000 |
| R36 | | CARBON RES. 1/4W J 12k Ω | RCX4JATZ0123 |
| R38 | | CHIP RES.(1608) 1/10W J 100 Ω | RRXAJR5Z0101 |
| R40 | | CHIP RES.(1608) 1/10W J 15k Ω | RRXAJR5Z0153 |
| R42 | | CHIP RES.(1608) 1/10W J 220 Ω | RRXAJR5Z0221 |
| R46 | | CHIP RES.(1608) 1/10W J 1k Ω | RRXAJR5Z0102 |
| R48 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| R49 | | CARBON RES. 1/4W J 100 Ω | RCX4JATZ0101 |
| R50 | | CHIP RES.(1608) 1/10W J 1k Ω | RRXAJR5Z0102 |
| R52 | | CHIP RES.(1608) 1/10W J 470 Ω | RRXAJR5Z0471 |
| R402 | | CHIP RES.(1608) 1/10W J 4.7k Ω | RRXAJR5Z0472 |
| R403 | | CHIP RES.(1608) 1/10W J 15k Ω | RRXAJR5Z0153 |
| R404 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R405 | | CHIP RES.(1608) 1/10W J 1.5k Ω | RRXAJR5Z0152 |
| R406 | | CARBON RES. 1/4W J 5.6k Ω | RCX4JATZ0562 |
| R407 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R408 | | CHIP RES.(1608) 1/10W J 2.2k Ω | RRXAJR5Z0222 |
| R409 | | CHIP RES.(1608) 1/10W J 15k Ω | RRXAJR5Z0153 |
| R410 | | CARBON RES. 1/4W J 330 Ω | RCX4JATZ0331 |
| R411 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R412 | | CHIP RES.(1608) 1/10W J 47 Ω | RRXAJR5Z0470 |
| R413 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R414 | | CHIP RES.(1608) 1/10W J 2.2k Ω | RRXAJR5Z0222 |
| R415 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R416 | | CHIP RES.(1608) 1/10W J 33k Ω | RRXAJR5Z0333 |
| R417 | | CHIP RES.(1608) 1/10W J 5.6k Ω | RRXAJR5Z0562 |
| R418 | | CHIP RES.(1608) 1/10W J 2.2k Ω | RRXAJR5Z0222 |
| R419 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R420 | | CHIP RES.(1608) 1/10W J 33 Ω | RRXAJR5Z0330 |
| R421 | | CHIP RES.(1608) 1/10W 0 Ω | RRXAZR5Z0000 |
| R422 | | CHIP RES.(1608) 1/10W J 330 Ω | RRXAJR5Z0331 |
| R423 | | CHIP RES.(1608) 1/10W J 3.3k Ω | RRXAJR5Z0332 |
| R424 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R425 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R426 | | CHIP RES.(1608) 1/10W J 3.3k Ω | RRXAJR5Z0332 |
| R427 | | CHIP RES.(1608) 1/10W J 47 Ω | RRXAJR5Z0470 |
| R428 | | CHIP RES.(1608) 1/10W J 330 Ω | RRXAJR5Z0331 |
| R429 | | CARBON RES. 1/4W J 56 Ω | RCX4JATZ0560 |
| R440 | | CHIP RES.(1608) 1/10W 0 Ω | RRXAZR5Z0000 |

| Ref. No. | Mark | Description | Part No. |
|---|---|---|---|
| R441 | | CHIP RES.(1608) 1/10W J 330 Ω | RRXAJR5Z0331 |
| R442 | | CHIP RES.(1608) 1/10W J 3.3k Ω | RRXAJR5Z0332 |
| R443 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R444 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R445 | | CHIP RES.(1608) 1/10W J 3.3k Ω | RRXAJR5Z0332 |
| R446 | | CHIP RES.(1608) 1/10W J 47 Ω | RRXAJR5Z0470 |
| R447 | | CHIP RES.(1608) 1/10W J 330 Ω | RRXAJR5Z0331 |
| R448 | | CARBON RES. 1/4W J 56 Ω | RCX4JATZ0560 |
| R463 | | CHIP RES.(1608) 1/10W J 390 Ω | RRXAJR5Z0391 |
| R464 | | CHIP RES.(1608) 1/10W J 390 Ω | RRXAJR5Z0391 |
| R465 | | CHIP RES.(1608) 1/10W J 390 Ω | RRXAJR5Z0391 |
| R466 | | CHIP RES.(1608) 1/10W J 390 Ω | RRXAJR5Z0391 |
| R471 | | CHIP RES.(1608) 1/10W J 3.9k Ω | RRXAJR5Z0392 |
| R475 | | CHIP RES.(1608) 1/10W J 1k Ω | RRXAJR5Z0102 |
| R476 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R480 | | CHIP RES.(1608) 1/10W J 3.9k Ω | RRXAJR5Z0392 |
| R481 | | CARBON RES. 1/4W J 1k Ω | RCX4JATZ0102 |
| R482 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R486 | | CHIP RES.(1608) 1/10W J 3.9k Ω | RRXAJR5Z0392 |
| R487 | | CHIP RES.(1608) 1/10W J 1k Ω | RRXAJR5Z0102 |
| R488 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R489 | | CHIP RES.(1608) 1/10W J 3.9k Ω | RRXAJR5Z0392 |
| R490 | | CARBON RES. 1/4W J 1.5k Ω | RCX4JATZ0152 |
| R491 | | METAL OXIDE FILM RES 2W J 330 Ω | RN02331KE010 |
| R492 | | METAL OXIDE FILM RES. 1W J 1k Ω | RN01102KE010 |
| R495 | | CHIP RES.(1608) 1/10W J 1k Ω | RRXAJR5Z0102 |
| R496 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R497 | | METAL OXIDE FILM RES 2W J 330 Ω | RN02331KE010 |
| R501 | | CHIP RES.(1608) 1/10W F 10k Ω | RRXAFR5H1002 |
| R502 | | CHIP RES.(1608) 1/10W 0 Ω | RRXAZR5Z0000 |
| R503 | | CHIP RES.(100PPM) 1/10W F 3k Ω | RRXAFR5H3001 |
| R504 | | CARBON RES. 1/4W J 470 Ω | RCX4JATZ0471 |
| R505 | | CHIP RES.(1608) 1/10W J 2.7k Ω | RRXAJR5Z0272 |
| R506 | | CHIP RES.(1608) 1/10W 0 Ω | RRXAZR5Z0000 |
| R508 | | MRTAL OXIDE FILM RES. 1W J 4.7k Ω | RN01472KE010 |
| R509 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| R510 | | CHIP RES.(1608) 1/10W J 100k Ω | RRXAJR5Z0104 |
| R512 | | CHIP RES.(1608) 1/10W J 3.3k Ω | RRXAJR5Z0332 |
| R514 | | CHIP RES.(1608) 1/10W J 22k Ω | RRXAJR5Z0223 |
| R515 | | CARBON RES. 1/4W J 22k Ω | RCX4JATZ0223 |
| R516 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R517 | | CARBON RES. 1/4W J 100 Ω | RCX4JATZ0101 |
| R518 | | CARBON RES. 1/4W J 47k Ω | RCX4JATZ0473 |
| R519 | | CHIP RES.(1608) 1/10W J 100k Ω | RRXAJR5Z0104 |
| R520 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R521 | | CARBON RES. 1/4W J 100k Ω | RCX4JATZ0104 |
| R522 | | CHIP RES.(1608) 1/10W J 120k Ω | RRXAJR5Z0124 |
| R527 | | CHIP RES.(1608) 1/10W J 3.9k Ω | RRXAJR5Z0392 |
| R528 | | CHIP RES.(1608) 1/10W J 18k Ω | RRXAJR5Z0183 |
| R529 | | CHIP RES.(1608) 1/10W J 47k Ω | RRXAJR5Z0473 |
| R530 | | METAL OXIDE FILM RES. 2W J 4.7 Ω | RN024R7KE010 |
| R531 | | CARBON RES. 1/4W J 56k Ω | RCX4JATZ0563 |
| R532 | | CHIP RES.(1608) 1/10W J 100 Ω | RRXAJR5Z0101 |
| R533 | | CHIP RES.(1608) 1/10W J 3.3k Ω | RRXAJR5Z0332 |
| R535 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R536 | | CARBON RES. 1/4W J 33k Ω | RCX4JATZ0333 |
| R537 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R538 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| R552 | | FIXED METAL OXIDE FILM RE S. 1W J 1 Ω | RN011R0KE010 |
| R601⚠ | | CEMENT RES. 3W K 1.2 Ω | RW031R2PG007 |
| R603⚠ | | CARBON RES. 1/4W J 390k Ω | RCX4JATZ0394 |
| R604 | | CARBON RES. 1/4W J 390k Ω | RCX4JATZ0394 |

| Ref. No. | Mark | Description | Part No. |
|---|---|---|---|
| R605 | | CARBON RES. 1/4W J 390k Ω | RCX4JATZ0394 |
| R606 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| R607 | | CARBON RES. 1/4W J 220 Ω | RCX4JATZ0221 |
| R608 | | CARBON RES. 1/4W J 220 Ω | RCX4JATZ0221 |
| R609 | | CARBON RES. 1/4W J 390k Ω | RCX4JATZ0394 |
| R610 | | CARBON RES. 1/4W J 180 Ω | RCX4JATZ0181 |
| R613⚠ | | METAL OXIDE FILM RES. 2W J 0.47 Ω | RN02R47KE010 |
| R620 | | CARBON RES. 1/4W J 150 Ω | RCX4JATZ0151 |
| R621 | | CARBON RES. 1/4W J 820 Ω | RCX4JATZ0821 |
| R622 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| R623 | | CARBON RES. 1/4W J 2.2k Ω | RCX4JATZ0222 |
| R633 | | CHIP RES.(1608) 1/10W J 68k Ω | RRXAJR5Z0683 |
| R634⚠ | | CARBON RES. 1/4W J 18k Ω | RCX4JATZ0183 |
| R635⚠ | | CHIP RES.(1608) 1/10W J 27k Ω | RRXAJR5Z0273 |
| R636 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| R637 | | CHIP RES.(1608) 1/10W J 2.2k Ω | RRXAJR5Z0222 |
| R642⚠ | | CHIP RES.(1608) 1/10W J 27k Ω | RRXAJR5Z0273 |
| R643⚠ | | CHIP RES.(1608) 1/10W J 270k Ω | RRXAJR5Z0274 |
| R645 | | CARBON RES. 1/4W J 22k Ω | RCX4JATZ0223 |
| R646 | | CARBON RES. 1/4W J 680 Ω | RCX4JATZ0681 |
| R647 | | CHIP RES.(1608) 1/10W F 1.8k Ω | RRXAFR5H1801 |
| R648⚠ | | CHIP RES.(1608) 1/10W F 2k Ω | RRXAFR5H2001 |
| R650⚠ | | CHIP RES.(1608) 1/10W F 1.8k Ω | RRXAFR5H1801 |
| R651 | | CHIP RES.(1608) 1/10W F 2k Ω | RRXAFR5H2001 |
| R652⚠ | | CHIP RES. 1/10W F 1.2k Ω | RRXAFR5H1201 |
| R653⚠ | | CHIP RES. 1/10W F 1.2k Ω | RRXAFR5H1201 |
| R654⚠ | | CHIP RES. 1/10W F 1.2k Ω | RRXAFR5H1201 |
| R655 | | CARBON RES. 1/4W J 10k Ω | RCX4JATZ0103 |
| R656 | | CHIP RES.(1608) 1/10W J 100k Ω | RRXAJR5Z0104 |
| R657 | | CARBON RES. 1/4W J 390 Ω | RCX4JATZ0391 |
| R658 | | CARBON RES. 1/4W J 470 Ω | RCX4JATZ0471 |
| R661⚠ | | CHIP RES.(1608) 1/10W F 1.8k Ω | RRXAFR5H1801 |
| R662 | | CARBON RES. 1/4W J 18k Ω | RCX4JATZ0183 |
| R663 | | CARBON RES. 1/4W J 10k Ω | RCX4JATZ0103 |
| R664 | | CHIP RES.(1608) 1/10W 0 Ω | RRXAZR5Z0000 |
| R665⚠ | | CHIP RES. 1/10W F 1.1k Ω | RRXAFR5H1101 |
| R671 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| R672 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| R701 | | CHIP RES.(1608) 1/10W J 390 Ω | RRXAJR5Z0391 |
| R702 | | CHIP RES.(1608) 1/10W J 390 Ω | RRXAJR5Z0391 |
| R703 | | CHIP RES.(1608) 1/10W J 33k Ω | RRXAJR5Z0333 |
| R704 | | CHIP RES.(1608) 1/10W J 39k Ω | RRXAJR5Z0393 |
| R705 | | CHIP RES.(1608) 1/10W J 33k Ω | RRXAJR5Z0333 |
| R706 | | CHIP RES.(1608) 1/10W J 39k Ω | RRXAJR5Z0393 |
| R707 | | CHIP RES.(1608) 1/10W J 100 Ω | RRXAJR5Z0101 |
| R708 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R709 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R710 | | CHIP RES.(1608) 1/10W J 390 Ω | RRXAJR5Z0391 |
| R711 | | CHIP RES.(1608) 1/10W J 33k Ω | RRXAJR5Z0333 |
| R712 | | CHIP RES.(1608) 1/10W J 39k Ω | RRXAJR5Z0393 |
| R713 | | CHIP RES.(1608) 1/10W J 18k Ω | RRXAJR5Z0183 |
| R714 | | CHIP RES.(1608) 1/10W J 18k Ω | RRXAJR5Z0183 |
| R715 | | CARBON RES. 1/4W J 100 Ω | RCX4JATZ0101 |
| R716 | | CARBON RES. 1/4W J 100 Ω | RCX4JATZ0101 |
| R717 | | CHIP RES.(1608) 1/10W J 75 Ω | RRXAJR5Z0750 |
| R718 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R719 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R720 | | CHIP RES.(1608) 1/10W J 47k Ω | RRXAJR5Z0473 |
| R721 | | CHIP RES.(1608) 1/10W J 47k Ω | RRXAJR5Z0473 |
| R722 | | CHIP RES.(1608) 1/10W J 75 Ω | RRXAJR5Z0750 |
| R725 | | CHIP RES.(1608) 1/10W J 75 Ω | RRXAJR5Z0750 |
| R732 | | CHIP RES.(1608) 1/10W J 390 Ω | RRXAJR5Z0391 |
| R733 | | CHIP RES.(1608) 1/10W J 33k Ω | RRXAJR5Z0333 |

| Ref. No. | Mark | Description | Part No. |
|---|---|---|---|
| R734 | | CARBON RES. 1/4W J 100 Ω | RCX4JATZ0101 |
| R735 | | CHIP RES.(1608) 1/10W J 39k Ω | RRXAJR5Z0393 |
| R736 | | CHIP RES.(1608) 1/10W J 75 Ω | RRXAJR5Z0750 |
| R738 | | CARBON RES. 1/4W J 100 Ω | RCX4JATZ0101 |
| R739 | | CHIP RES.(1608) 1/10W J 100 Ω | RRXAJR5Z0101 |
| R740 | | CHIP RES.(1608) 1/10W J 390 Ω | RRXAJR5Z0391 |
| R741 | | CHIP RES.(1608) 1/10W J 390 Ω | RRXAJR5Z0391 |
| R742 | | CHIP RES.(1608) 1/10W J 75 Ω | RRXAJR5Z0750 |
| R743 | | CHIP RES.(1608) 1/10W J 33k Ω | RRXAJR5Z0333 |
| R744 | | CHIP RES.(1608) 1/10W J 75 Ω | RRXAJR5Z0750 |
| R747 | | CHIP RES.(1608) 1/10W J 39k Ω | RRXAJR5Z0393 |
| R748 | | CHIP RES.(1608) 1/10W J 33k Ω | RRXAJR5Z0333 |
| R749 | | CHIP RES.(1608) 1/10W J 39k Ω | RRXAJR5Z0393 |
| R752 | | CHIP RES.(1608) 1/10W J 18k Ω | RRXAJR5Z0183 |
| R755 | | CHIP RES.(1608) 1/10W J 18k Ω | RRXAJR5Z0183 |
| R756 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R757 | | CHIP RES.(1608) 1/10W J 47k Ω | RRXAJR5Z0473 |
| R758 | | CHIP RES.(1608) 1/10W J 47k Ω | RRXAJR5Z0473 |
| R759 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R782 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R784 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R785 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R786 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R787 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R788 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R789 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R790 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R791 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R792 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R793 | | CARBON RES. 1/4W J 10k Ω | RCX4JATZ0103 |
| R794 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R798 | | CHIP RES.(1608) 1/10W J 22k Ω | RRXAJR5Z0223 |
| R799 | | CARBON RES. 1/4W J 22k Ω | RCX4JATZ0223 |
| R801 | | CARBON RES. 1/2W J 100 Ω | RCX2JZQZ0101 |
| R802 | | CARBON RES. 1/2W J 100 Ω | RCX2JZQZ0101 |
| R803 | | CHIP RES.(1608) 1/10W J 100 Ω | RRXAJR5Z0101 |
| R804 | | CHIP RES.(1608) 1/10W J 100 Ω | RRXAJR5Z0101 |
| R805⚠ | | METAL OXIDE FILM RES. 2W J 2.7 Ω | RN022R7KE010 |
| R806 | | CARBON RES. 1/4W J 560 Ω | RCX4JATZ0561 |
| R807⚠ | | METAL OXIDE FILM RES. 2W J 2.7 Ω | RN022R7KE010 |
| R808 | | CHIP RES.(1608) 1/10W J 56k Ω | RRXAJR5Z0563 |
| R809 | | CHIP RES.(1608) 1/10W J 180k Ω | RRXAJR5Z0184 |
| R810 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R811 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R813 | | CHIP RES.(1608) 1/10W J 47k Ω | RRXAJR5Z0473 |
| R814 | | CHIP RES.(1608) 1/10W J 2.7k Ω | RRXAJR5Z0272 |
| R816 | | CHIP RES.(1608) 1/10W J 2.7k Ω | RRXAJR5Z0272 |
| R817 | | CHIP RES.(1608) 1/10W J 47k Ω | RRXAJR5Z0473 |
| R820 | | CARBON RES. 1/4W J 22k Ω | RCX4JATZ0223 |
| R821 | | CHIP RES.(1608) 1/10W J 22k Ω | RRXAJR5Z0223 |
| R822 | | CHIP RES.(1608) 1/10W J 22k Ω | RRXAJR5Z0223 |
| R823 | | CHIP RES.(1608) 1/10W J 22k Ω | RRXAJR5Z0223 |
| R824 | | CHIP RES.(1608) 1/10W J 22k Ω | RRXAJR5Z0223 |
| R825 | | CHIP RES.(1608) 1/10W J 22k Ω | RRXAJR5Z0223 |
| R826 | | CHIP RES.(1608) 1/10W J 22k Ω | RRXAJR5Z0223 |
| R827 | | CHIP RES.(1608) 1/10W J 22k Ω | RRXAJR5Z0223 |
| R829 | | CHIP RES.(1608) 1/10W J 22k Ω | RRXAJR5Z0223 |
| R830 | | CHIP RES.(1608) 1/10W J 22k Ω | RRXAJR5Z0223 |
| R831 | | CHIP RES.(1608) 1/10W J 22k Ω | RRXAJR5Z0223 |
| R832 | | CHIP RES.(1608) 1/10W J 22k Ω | RRXAJR5Z0223 |
| R833 | | CHIP RES.(1608) 1/10W J 22k Ω | RRXAJR5Z0223 |
| R834 | | CHIP RES.(1608) 1/10W J 22k Ω | RRXAJR5Z0223 |
| R835 | | CHIP RES.(1608) 1/10W J 5.6k Ω | RRXAJR5Z0562 |
| R836 | | CHIP RES.(1608) 1/10W J 330 Ω | RRXAJR5Z0331 |
| R837 | | CHIP RES.(1608) 1/10W J 12k Ω | RRXAJR5Z0123 |
| R838 | | CARBON RES. 1/4W J 12k Ω | RCX4JATZ0123 |
| R839 | | CHIP RES.(1608) 1/10W J 12k Ω | RRXAJR5Z0123 |
| R842 | | CHIP RES.(1608) 1/10W J 22k Ω | RRXAJR5Z0223 |
| R843 | | CHIP RES.(1608) 1/10W J 22k Ω | RRXAJR5Z0223 |
| R844 | | CHIP RES.(1608) 1/10W J 2.2k Ω | RRXAJR5Z0222 |
| R851 | | CHIP RES.(1608) 1/10W J 100 Ω | RRXAJR5Z0101 |
| R852 | | CHIP RES.(1608) 1/10W J 100 Ω | RRXAJR5Z0101 |
| R853 | | CHIP RES.(1608) 1/10W J 3.3k Ω | RRXAJR5Z0332 |
| R855 | | CHIP RES.(1608) 1/10W J 180k Ω | RRXAJR5Z0184 |
| **MISCELLANEOUS** | | | |
| AC601⚠ | | AC CORD PB8K9F4110AB057 | WAC0172LW020 |
| B6 | | POW HEAT SINK PKG ASSEMBLY L3201UB | 1EM420650 |
| B7 | | SHIELD BOX TOP L3201UB | 1EM320159 |
| BC602 | | BEAD INDUCTORS FBR07HA121TB-00 | LLBF00ZTU021 |
| BC632 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| BC634 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| BC635 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| BC636 | | BEAD INDUCTORS FBR07HA121TB-00 | LLBF00ZTU021 |
| CF31 | | CERAMIC FILTER SFSRA4M50CF00-B0 | FBB455PMR004 |
| F601⚠ | | FUSE 4.00A/125V | PAGU20CAG402 |
| FH601 | | FUSE HOLDER MSF-015 | XH01Z00LY001 |
| FH602 | | FUSE HOLDER MSF-015 | XH01Z00LY001 |
| GP641⚠ | | GAP. FNR-G3.10D | FAZ000LD6005 |
| JK701 | | Y/C JACK 1P(SW) MDC-070V1-A | JYEL040LY002 |
| JK703 | | RCA JACK(YELLOW) MTJ-032-06B-20 | JXRL010LY050 |
| JK704 | | RCA JACK(WHITE) MTJ-032-06B-22 | JXRL010LY052 |
| JK705 | | RCA JACK(RED) MTJ-032-06A-21 | JYRL010LY014 |
| JK706 | | RCA JACK(GREEN) MTJ-032-06B-25 | JXRL010LY054 |
| JK707 | | RCA JACK(BLUE) MTJ-032-06B-28 | JXRL010LY057 |
| JK708 | | RCA JACK(RED) MTJ-032-06B-21 | JXRL010LY051 |
| JK709 | | RCA JACK(WHITE) MTJ-032-06B-22 | JXRL010LY052 |
| JK710 | | RCA JACK(RED) MTJ-032-06A-21 | JYRL010LY014 |
| JK801 | | HEADPHONE JACK MSJ-035-10A B | JYSL020LY002 |
| JS524 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| JS601 | | PCB JUMPER D0.6-P7.5 | JW7.5T |
| JS602 | | PCB JUMPER D0.6-P10.0 | JW10.0T |
| JS603 | | PCB JUMPER D0.6-P7.5 | JW7.5T |
| JS604 | | PCB JUMPER D0.6-P10.0 | JW10.0T |
| JS632 | | PCB JUMPER D0.6-P10.0 | JW10.0T |
| JS633 | | PCB JUMPER D0.6-P10.0 | JW10.0T |
| JS636 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| JS805 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| JS806 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| JS813 | | CHIP RES.(1608) 1/10W 0 Ω | RRXAZR5Z0000 |
| L4 | | SCREW B-TIGHT D3X8 BIND HEAD+ | GBMB3080 |
| SA601⚠ | | SURGE ABSORBER 470V+-10PER | NVQZ10D471KB |
| SF11 | | SAW FILTER SAFHM45M7VAJZ01B03 | FBB456PMR012 |
| T402⚠ | | INVERTER TRANS ETJV25ZB13AC | LTZ00EPMS006 |
| T403⚠ | | INVERTER TRANS ETJV25ZB13AC | LTZ00EPMS006 |
| T601⚠ | | SWITCHING TRANS 5725 | LTT00CPKT185 |
| TP402 | | PCB JUMPER D0.6-P12.5 | JW12.5T |
| TP403 | | PCB JUMPER D0.6-P5.0 | JW5.0T |
| TU1 | | TUNER UNIT TEFH9-002A | UTUNNTUAL045 |

## FUNCTION CBA

| Ref. No. | Mark | Description | Part No. |
|---|---|---|---|
| | | FUNCTION CBA<br>Consists of the following: | ---------- |
| **CAPACITORS** | | | |
| C101 | A,B | ELECTROLYTIC CAP. 47μF/10V M H7 | CE1AMASSL470 |
| C103 | | CERAMIC CAP.(AX) B K 0.01μF/50V | CA1J103TU011 |
| **RESISTORS** | | | |
| R101 | | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| R102 | | CARBON RES. 1/4W J 47 Ω | RCX4JATZ0470 |
| R103 | | CARBON RES. 1/4W J 1.5k Ω | RCX4JATZ0152 |
| R104 | | CHIP RES.(1608) 1/10W J 1.5k Ω | RRXAJR5Z0152 |
| R105 | | CHIP RES.(1608) 1/10W J 2.2k Ω | RRXAJR5Z0222 |
| R106 | | CHIP RES.(1608) 1/10W J 2.7k Ω | RRXAJR5Z0272 |
| R107 | | CARBON RES. 1/4W J 4.7k Ω | RCX4JATZ0472 |
| R108 | | CHIP RES.(1608) 1/10W J 6.8k Ω | RRXAJR5Z0682 |
| R109 | | CARBON RES. 1/4W J 10k Ω | RCX4JATZ0103 |
| R110 | | CARBON RES. 1/4W J 47 Ω | RCX4JATZ0470 |
| R118 | A,B | CHIP RES.(1608) 1/10W J 68 Ω | RRXAJR5Z0680 |
| R119 | A,B | CHIP RES.(1608) 1/10W J 68 Ω | RRXAJR5Z0680 |
| **SWITCHES** | | | |
| SW101 | | TACT SWITCH SKQSAB | SST0101AL038 |
| SW102 | | TACT SWITCH SKQSAB | SST0101AL038 |
| SW103 | | TACT SWITCH SKQSAB | SST0101AL038 |
| SW104 | | TACT SWITCH SKQSAB | SST0101AL038 |
| SW105 | | TACT SWITCH SKQSAB | SST0101AL038 |
| SW107 | | TACT SWITCH SKQSAB | SST0101AL038 |
| SW111 | | TACT SWITCH SKQSAB | SST0101AL038 |
| **MISCELLANEOUS** | | | |
| CLN104 | A,B | 8P WIRE ASSEMBLY WX1L3100-003 | WX1L3100-003 |
| CLN104 | C | 8P WIRE ASSEMBLY WX1L3101-003 | WX1L3101-003 |
| JS121 | | CHIP RES.(1608) 1/10W 0 Ω | RRXAZR5Z0000 |
| JS122 | | CHIP RES.(1608) 1/10W 0 Ω | RRXAZR5Z0000 |
| JS123 | A,B | CHIP RES.(1608) 1/10W 0 Ω | RRXAZR5Z0000 |
| JS124 | A,B | CHIP RES.(1608) 1/10W 0 Ω | RRXAZR5Z0000 |
| RCV101 | A,B | PHOTO LINK MODULE KSM-712TH2E | USESJRSKK044 |

## IR SENSOR CBA

| Ref. No. | Mark | Description | Part No. |
|---|---|---|---|
| | C | IR SENSOR CBA<br>Consists of the following: | ---------- |
| **CAPACITOR** | | | |
| C102 | C | ELECTROLYTIC CAP. 47μF/10V M H7 | CE1AMASSL470 |
| **DIODE** | | | |
| D102 | C | LED LTL-4214M1 | NPQZLTL4214M |
| **TRANSISTOR** | | | |
| Q102 | C | TRANSISTOR 2SC4081 T106 Q | QQ1Q02SC4081 |
| **RESISTORS** | | | |
| R123 | C | CHIP RES.(1608) 1/10W J 68 Ω | RRXAJR5Z0680 |
| R124 | C | CHIP RES.(1608) 1/10W J 68 Ω | RRXAJR5Z0680 |
| R125 | C | CHIP RES.(1608) 1/10W J 150 Ω | RRXAJR5Z0151 |
| R126 | C | CHIP RES.(1608) 1/10W J 150 Ω | RRXAJR5Z0151 |
| R127 | C | CARBON RES. 1/4W J 10k Ω or | RCX4JATZ0103 |
| | C | CHIP RES.(1608) 1/10W J 10k Ω | RRXAJR5Z0103 |
| **MISCELLANEOUS** | | | |
| CLN105 | C | 5P WIRE ASSEMBLY WX1L3101-004 | WX1L3101-004 |
| RCV102 | C | REMOCON RECEIVE UNIT PIC-37042SR | USESJRSKK034 |

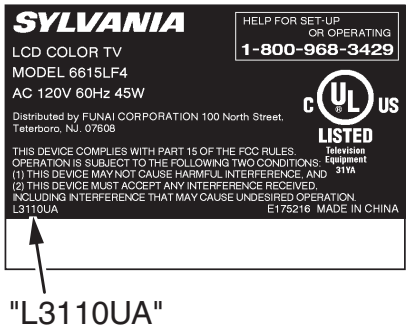
**SUPPLEMENT**

SYLVANIA

# SERVICE MANUAL

**This service manual is for the 6615LF4 different LCD Module Assembly model, which is different from the previous 6615LF4 model.**
**For 6615LF4 different LCD Module Assembly model, the letter (L3110UA) is printed on rating label on the back of the unit. Refer to the rating label illustration at right.**

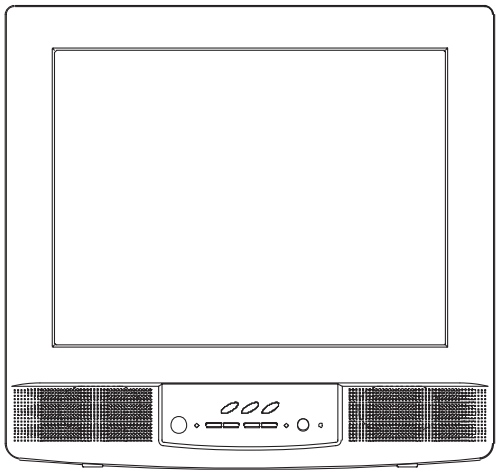
Rating Label


SYLVANIA
HELP FOR SET-UP OR OPERATING
1-800-968-3429
LCD COLOR TV
MODEL 6615LF4
AC 120V 60Hz 45W
Distributed by FUNAI CORPORATION 100 North Street, Teterboro, NJ. 07608
C UL US
LISTED
Television Equipment 31YA
THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:
(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND
(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.
L3110UA
E175216 MADE IN CHINA

"L3110UA"

## 15″ COLOR LCD TELEVISION

## 6615LF4



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Different parts from the previous model . . . . . 2-1

# SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

## Standard Notes

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark "⚠" in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

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1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms (K = $10^3$, M = $10^6$).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in μF (P = $10^{-6}$ μF).
5. All voltages are DC voltages unless otherwise specified.

### Note of Capacitors:

ML --- Mylar Cap. PP --- Metallized Film Cap. SC --- Semiconductor Cap. L --- Low Leakage type

### Temperature Characteristics of Capacitors are noted with the following:

B --- ±10% CH --- 0±60 ppm/°C CSL --- +350~-1000 ppm/°C

### Tolerance of Capacitors are noted with the following:

Z --- +80~-20%

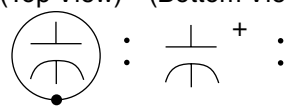
### Note of Resistors:

CEM --- Cement Res. MTL --- Metal Res. F --- Fuse Res.

**Capacitors and transistors are represented by the following symbols.**

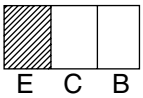
CBA Symbols

(Top View) (Bottom View)



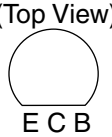
Electrolytic Capacitor

(Bottom View)




Transistor or Digital Transistor

(Top View)




NPN Transistor

(Top View)

PNP Transistor

(Top View)

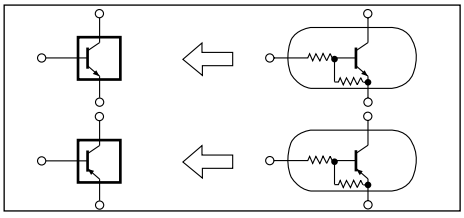
NPN Digital Transistor

(Top View)

PNP Digital Transistor

Schematic Diagram Symbols

Digital Transistor



## LIST OF CAUTION, NOTES, AND SYMBOLS USED IN THE SCHEMATIC DIAGRAMS ON THE FOLLOWING PAGES:

### 1. CAUTION:

**CAUTION:** FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE_A,_V FUSE.

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### 2. CAUTION:

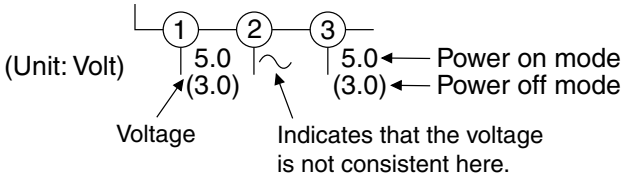
Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F601) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

### 3. Note:

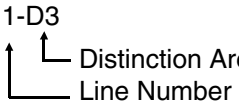
1. Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.
2. To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

### 4. Voltage indications on the schematics are as shown below:

Plug the TV power cord into a standard AC outlet.:




### 5. How to read converged lines




Examples:
1. "1-D3" means that line number "1" goes to the line number "1" of the area "D3".
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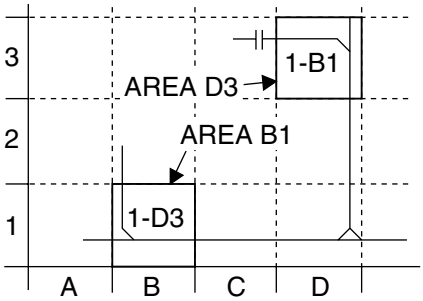



### 6. Test Point Information

: Indicates a test point with a jumper wire across a hole in the PCB.

: Used to indicate a test point with a component lead on foil side.

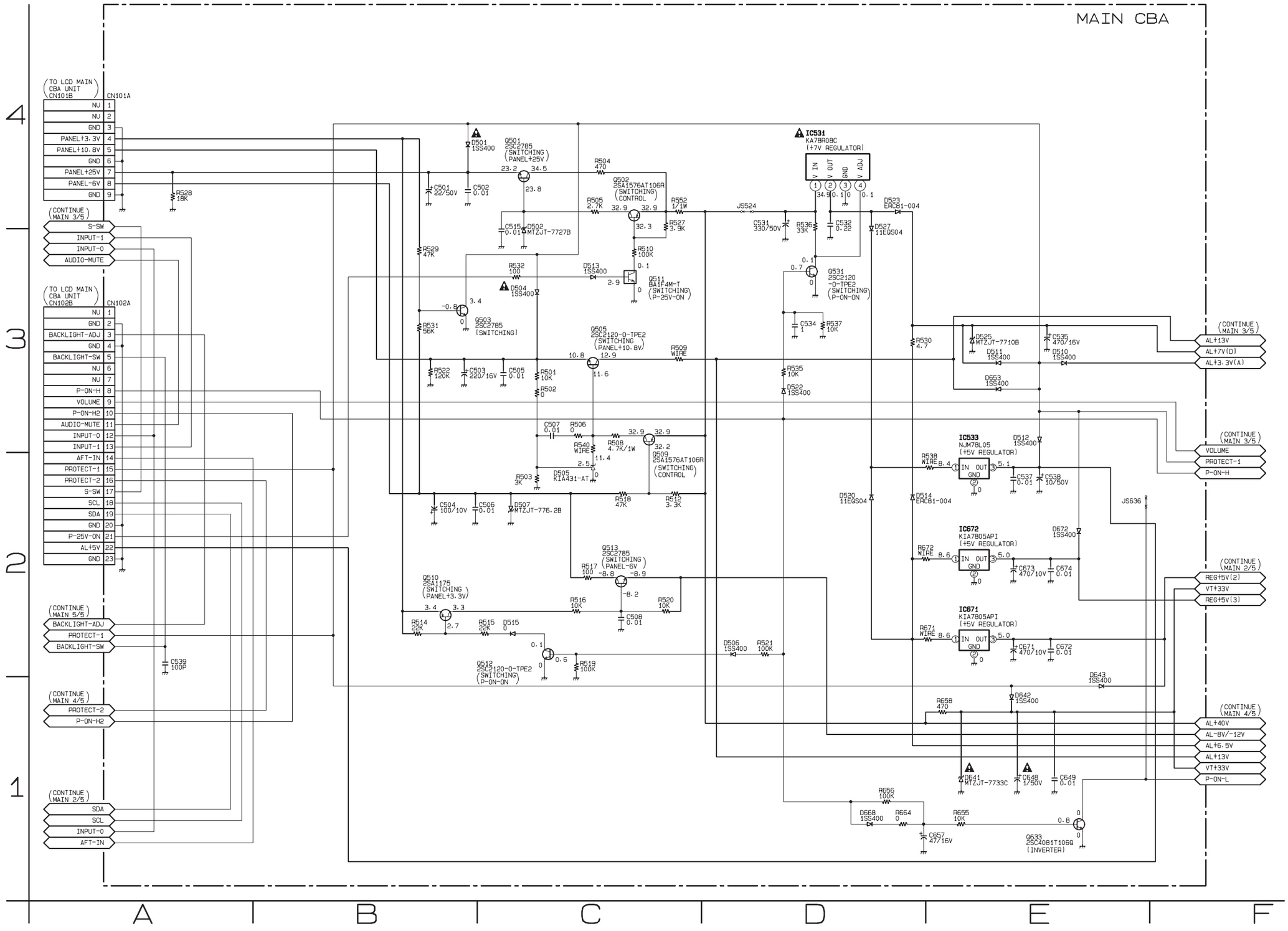
: Used to indicate a test point with no test pin.

: Used to indicate a test point with a test pin.

# Main 1/5 Schematic Diagram (6615LF4)

MAIN 1/5

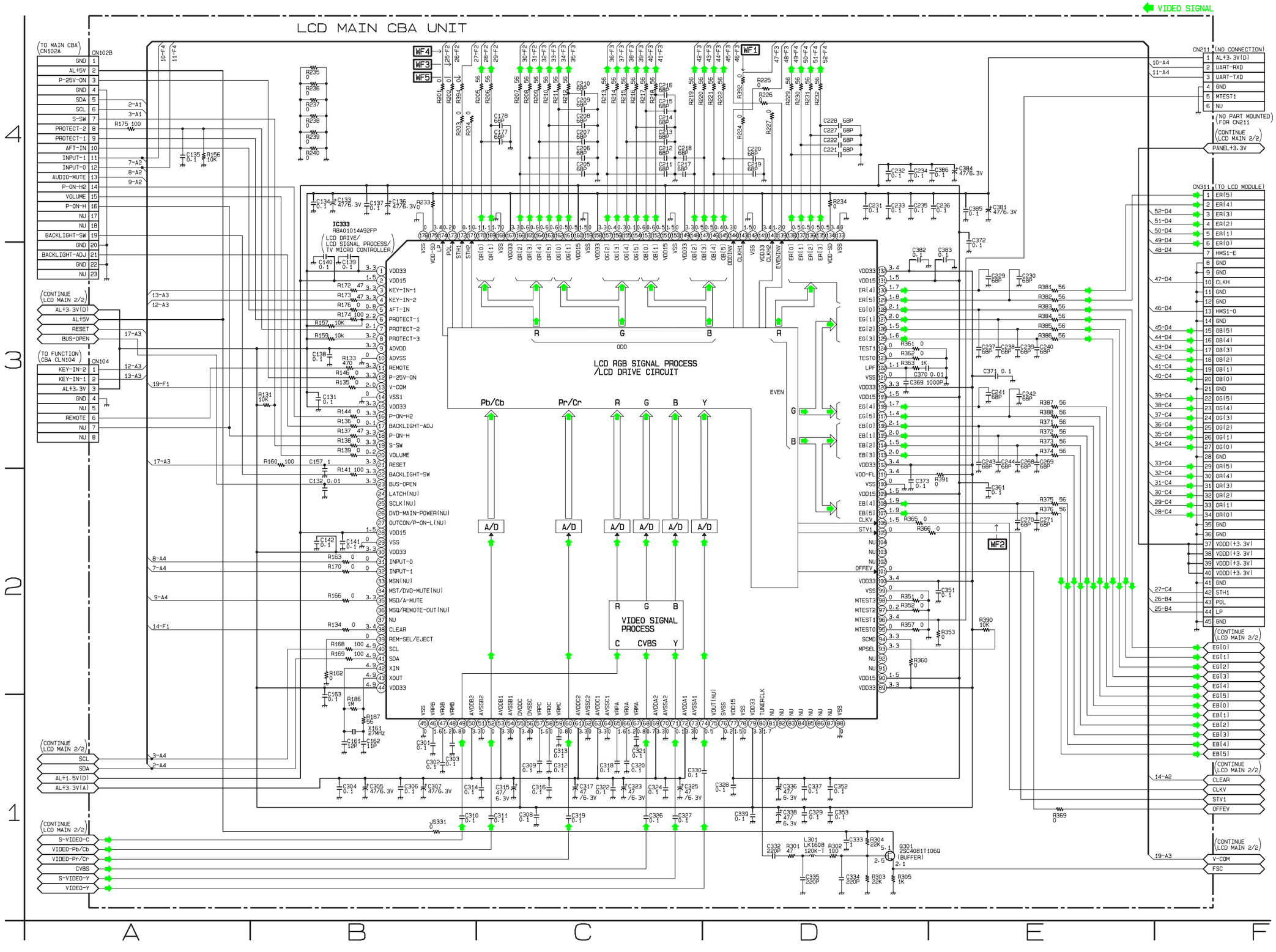
| Ref No. | Position |
|---|---|
| ICS | |
| IC531 | D-4 |
| IC533 | E-3 |
| IC671 | E-2 |
| IC672 | E-2 |
| TRANSISTORS | |
| Q501 | C-4 |
| Q502 | C-4 |
| Q503 | B-3 |
| Q505 | C-3 |
| Q509 | C-3 |
| Q510 | B-2 |
| Q511 | C-3 |
| Q512 | C-2 |
| Q513 | C-2 |
| Q531 | D-3 |
| Q633 | E-1 |
| CONNECTORS | |
| CN101A | A-4 |
| CN102A | A-3 |



# LCD Main 1/2 Schematic Diagram

LCD MAIN 1/2

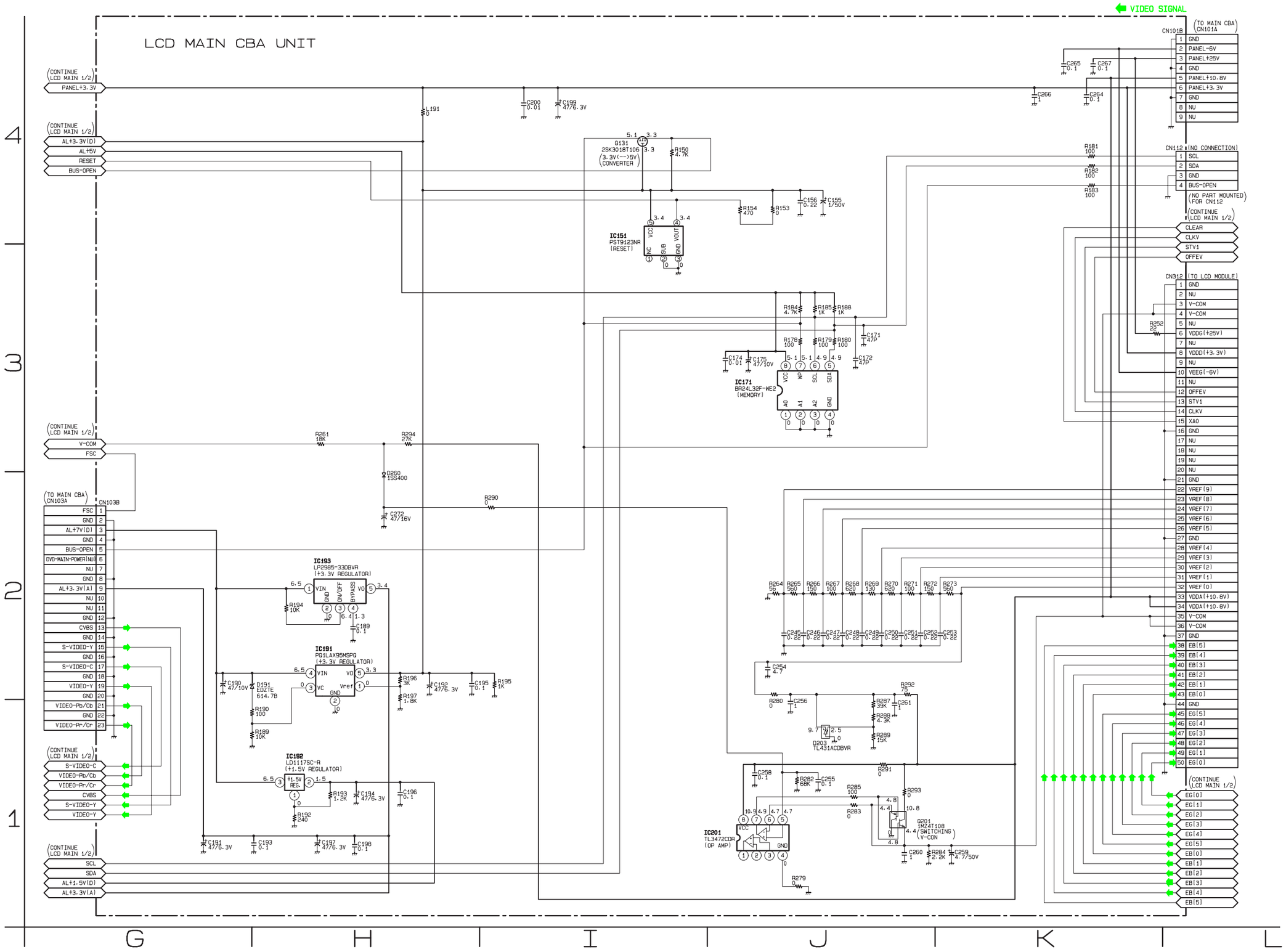
| Ref No. | Position |
|---|---|
| IC | |
| IC333 | B-3 |
| TRANSISTOR | |
| Q301 | D-1 |
| CONNECTORS | |
| CN104 | A-3 |
| CN105 | A-2 |
| CN111 | A-2 |
| CN211 | F-4 |
| CN311 | F-4 |
| CN102B | A-4 |



# LCD Main 2/2 Schematic Diagram

LCD MAIN 2/2

| Ref No. | Position |
|---|---|
| ICS | |
| IC151 | I-3 |
| IC171 | J-3 |
| IC191 | H-2 |
| IC192 | H-1 |
| IC193 | H-2 |
| IC201 | J-1 |
| TRANSISTORS | |
| Q131 | I-4 |
| Q201 | J-1 |
| CONNECTORS | |
| CN112 | L-4 |
| CN312 | L-3 |
| CN101B | L-4 |
| CN103B | G-2 |



# Main CBA Top View

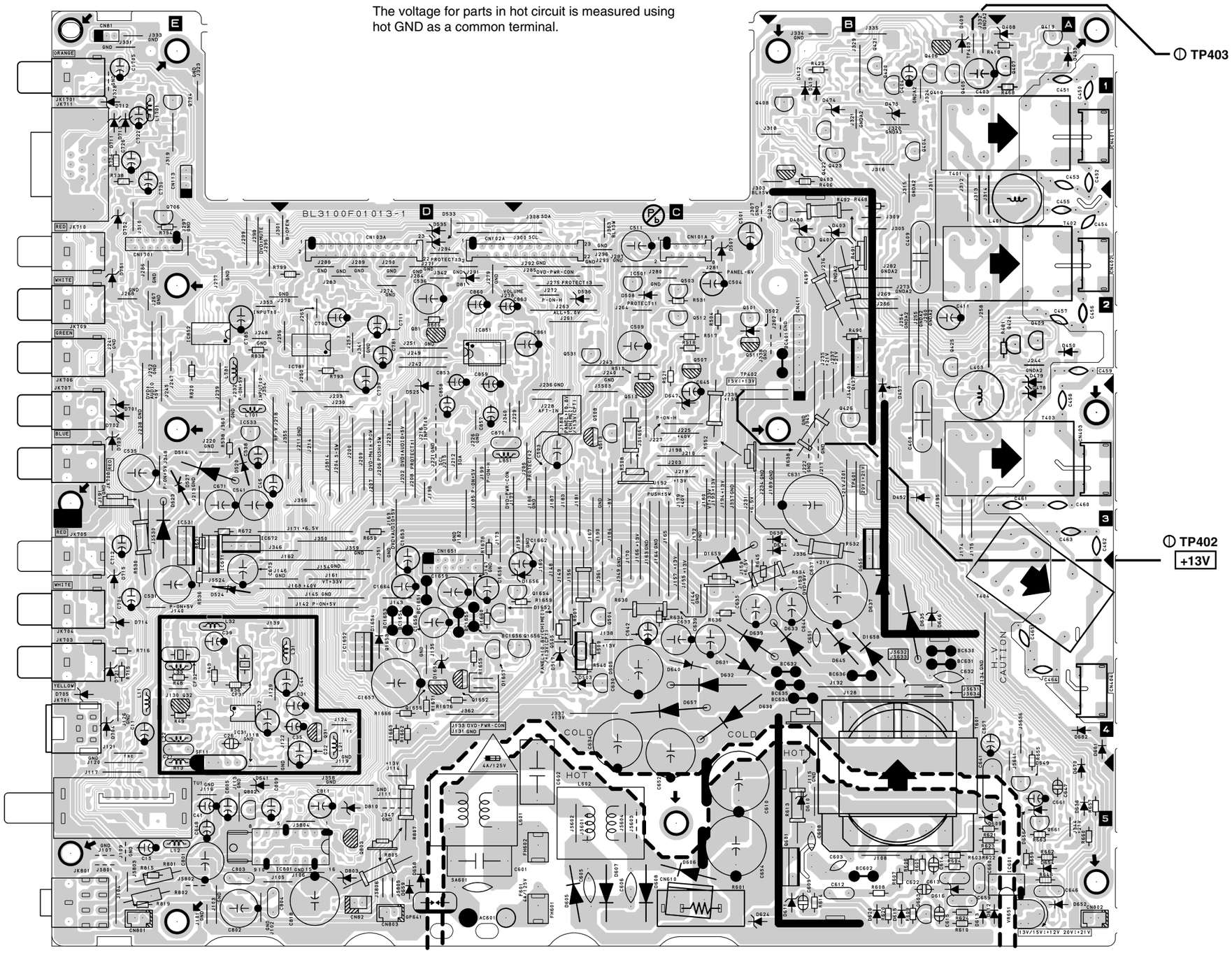
**CAUTION !**
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F601) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

4A/125V

**CAUTION ! :** For continued protection against risk of fire, replace only with same type 4 A, 125V fuse.
**ATTENTION :** Utiliser un fusible de rechange de même type de 4A, 125V.

**Because a hot chassis ground is present in the power supply circuit, an isolation transformer must be used. Also, in order to have the ability to increase the input slowly,when troubleshooting this type power supply circuit, a variable isolation transformer is required.**

**NOTE:**
The voltage for parts in hot circuit is measured using hot GND as a common terminal.



# Main CBA Bottom View

**CAUTION !**
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F601) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
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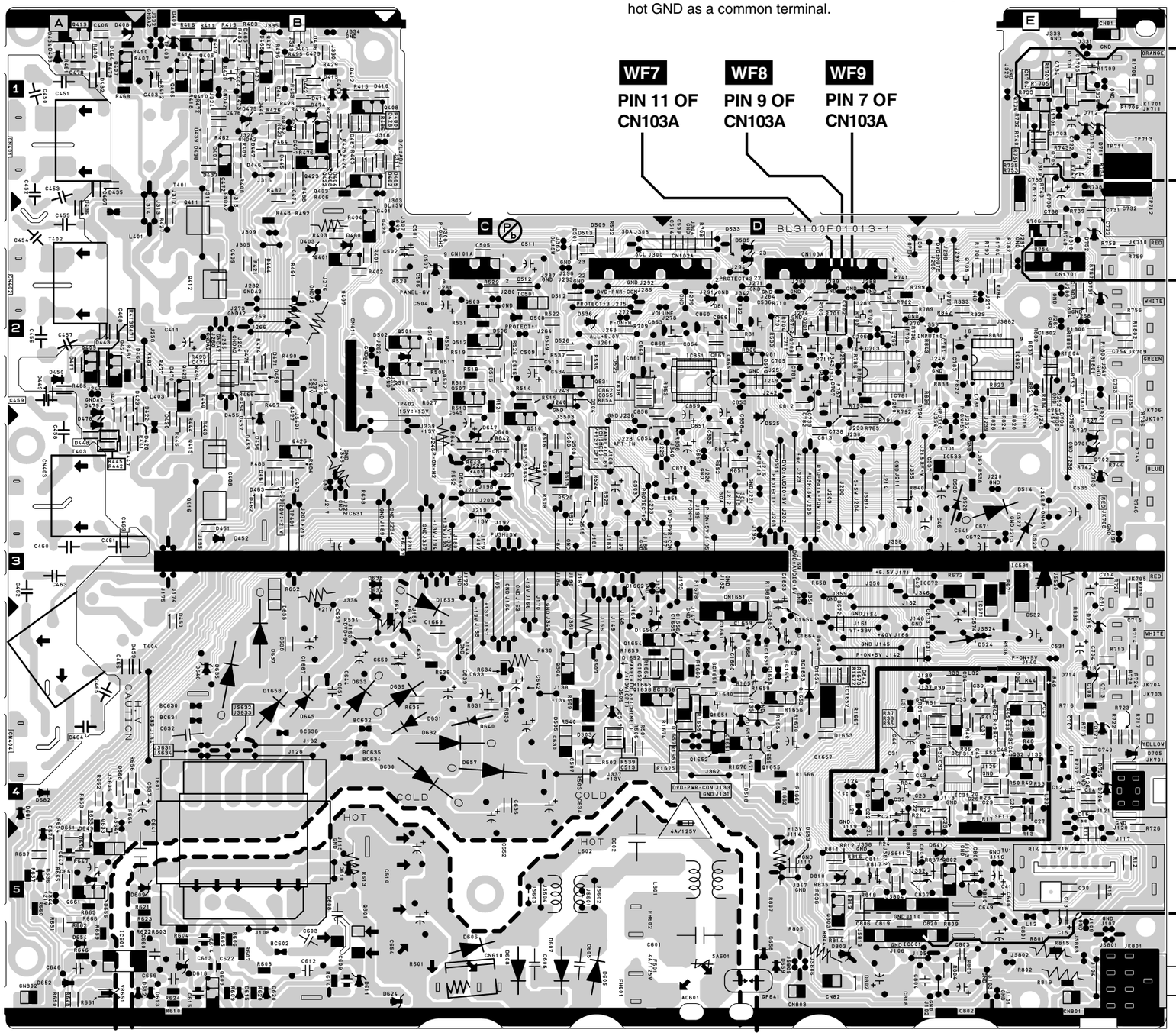
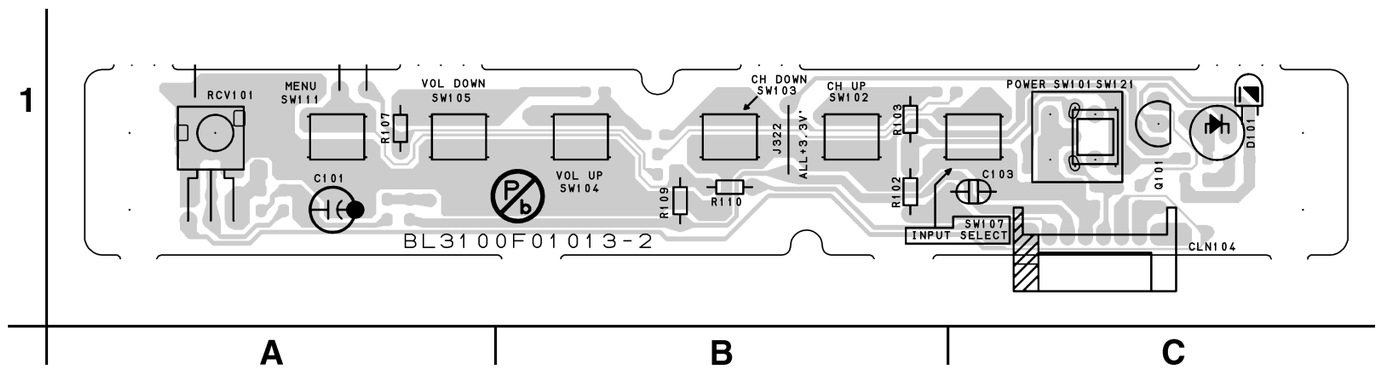



MAIN CBA

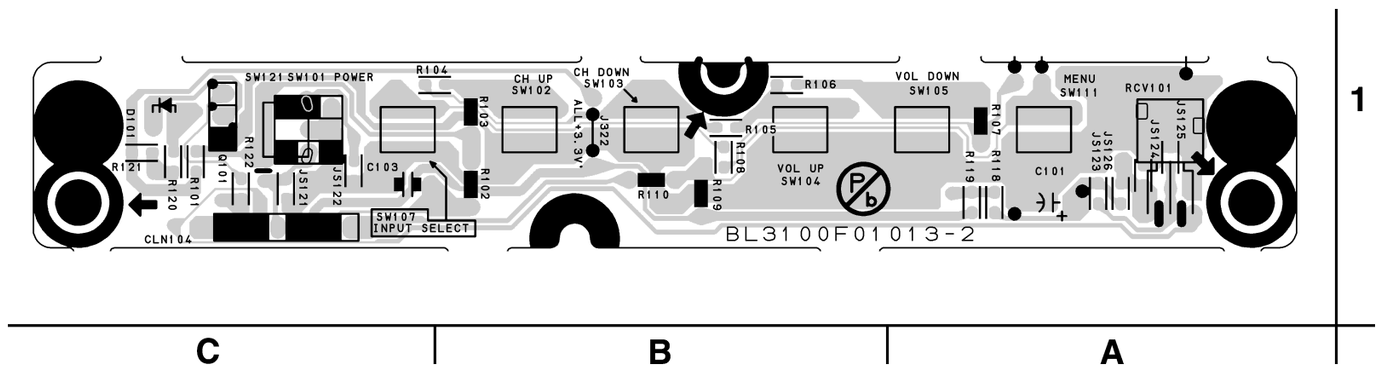
| Ref No. | Position | Ref No. | Position |
|---|---|---|---|
| ICS | | TRANSISTORS | |
| IC31 | E-4 | Q505 | C-4 |
| IC531 | E-3 | Q509 | C-3 |
| IC533 | E-3 | Q510 | C-3 |
| IC601 | A-5 | Q511 | C-2 |
| IC671 | E-4 | Q512 | C-2 |
| IC672 | E-3 | Q513 | C-3 |
| IC781 | D-2 | Q531 | C-2 |
| IC801 | D-5 | Q601 | B-5 |
| IC851 | D-2 | Q603 | B-5 |
| IC852 | E-2 | Q633 | A-5 |
| TRANSISTORS | | Q661 | A-5 |
| Q32 | E-4 | Q701 | D-2 |
| Q401 | B-2 | Q702 | D-2 |
| Q403 | B-1 | Q703 | D-2 |
| Q404 | B-1 | Q704 | E-1 |
| Q405 | B-1 | Q705 | E-1 |
| Q406 | B-1 | Q706 | E-2 |
| Q407 | A-1 | Q707 | E-2 |
| Q408 | B-1 | Q708 | E-2 |
| Q409 | A-2 | Q802 | E-5 |
| Q410 | B-1 | Q803 | D-5 |
| Q411 | B-2 | CONNECTORS | |
| Q412 | B-2 | CN113 | E-1 |
| Q415 | B-3 | CN402 | A-2 |
| Q416 | B-3 | CN403 | A-3 |
| Q421 | B-1 | CN801 | E-5 |
| Q422 | B-1 | CN802 | A-5 |
| Q423 | B-1 | CN101A | C-2 |
| Q424 | A-2 | CN102A | D-2 |
| Q427 | B-2 | CN103A | D-2 |
| Q428 | B-2 | TEST POINTS | |
| Q501 | C-2 | TP402 | C-2 |
| Q502 | C-2 | TP403 | B-1 |
| Q503 | C-2 | | |

## Function CBA Top View




BL3100F01013-2

## Function CBA Bottom View




BL3100F01013-2

# Different parts from the previous model

| Ref. No. | Description | Part No. |
|---|---|---|
| **MECHANICAL PARTS** | | |
| A6⚠ | RATING LABEL L3110UA | ---------- |
| **ELECTRICAL PARTS** | | |
| | LCD MAIN CBA & LIQUID CRYSTAL PANEL UNIT | 1FSA10049 |

6615LF4
L3110UA
2005-09-16

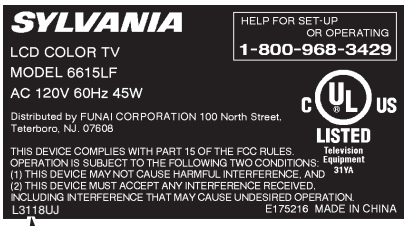
**SUPPLEMENT**

SYLVANIA

# SERVICE MANUAL

**This service manual is for the 6615LF different LCD Module Assembly model, which is different from the previous 6615LF model.**
**For 6615LF different LCD Module Assembly model, the letter (L3118UJ) is printed on rating label on the back of the unit. Refer to the rating label illustration at right.**

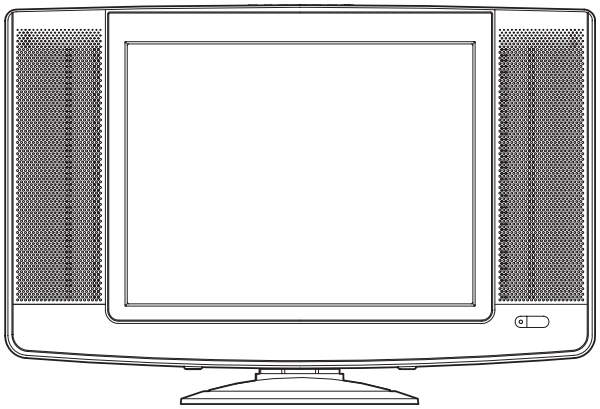
Rating Label


SYLVANIA
HELP FOR SET-UP OR OPERATING
1-800-968-3429
LCD COLOR TV
MODEL 6615LF
AC 120V 60Hz 45W
Distributed by FUNAI CORPORATION 100 North Street, Teterboro, NJ. 07608
C UL US
LISTED
Television Equipment 31YA
THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:
(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND
(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.
L3118UJ
E175216 MADE IN CHINA

"L3118UJ"

## 15″ COLOR LCD TELEVISION

## 6615LF



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Different parts from the previous model . . . . . 2-1

# SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

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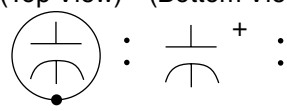

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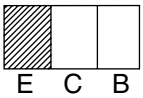
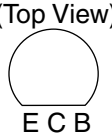
(Bottom View)




Transistor or Digital Transistor

(Top View)




NPN Transistor

(Top View)

PNP Transistor

(Top View)

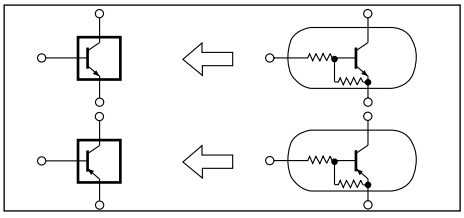
NPN Digital Transistor

(Top View)

PNP Digital Transistor

Schematic Diagram Symbols

Digital Transistor



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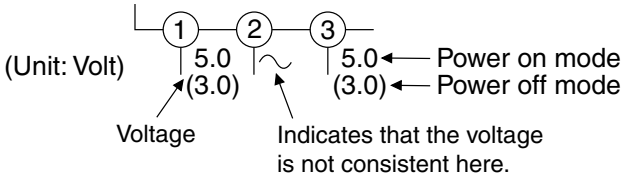


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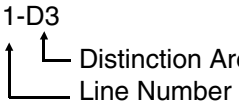


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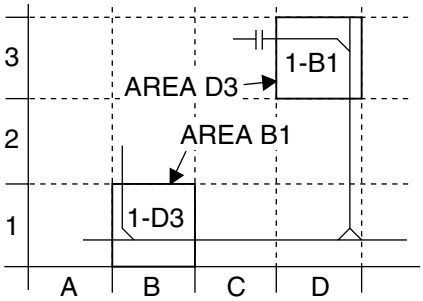


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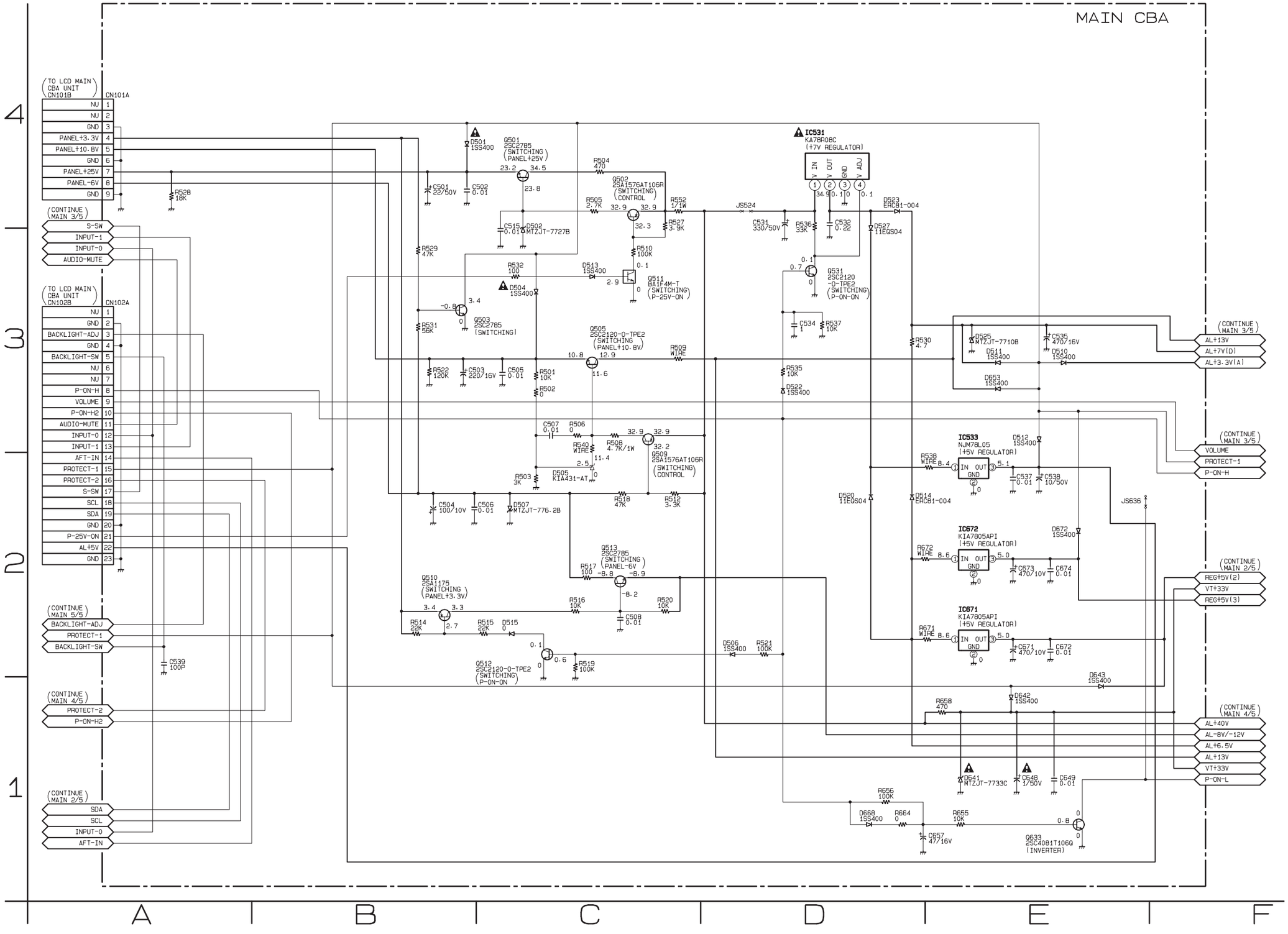
# Main 1/5 Schematic Diagram

MAIN 1/5

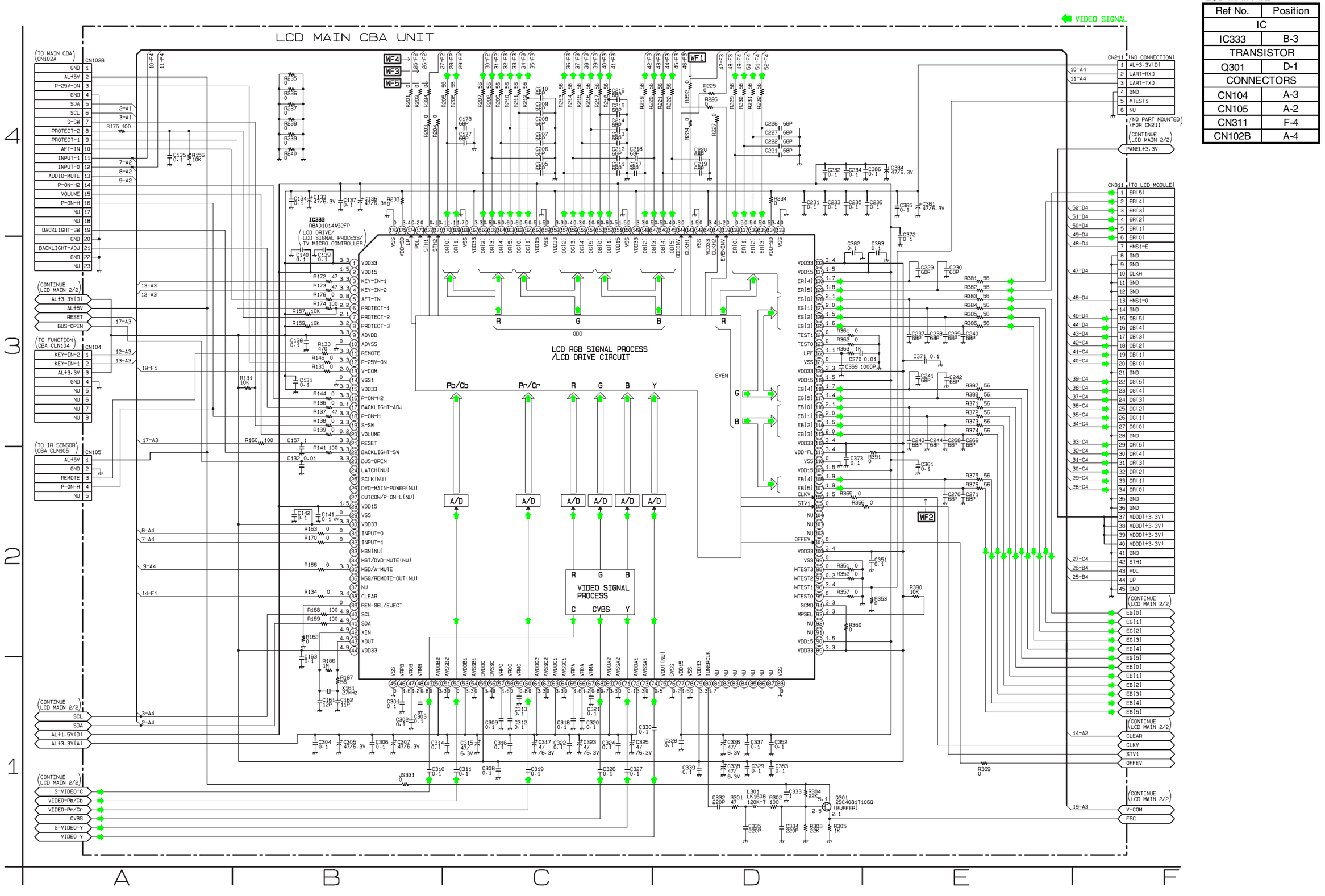
| Ref No. | Position |
|---|---|
| ICS | |
| IC531 | D-4 |
| IC533 | E-3 |
| IC671 | E-2 |
| IC672 | E-2 |
| TRANSISTORS | |
| Q501 | C-4 |
| Q502 | C-4 |
| Q503 | B-3 |
| Q505 | C-3 |
| Q509 | C-3 |
| Q510 | B-2 |
| Q511 | C-3 |
| Q512 | C-2 |
| Q513 | C-2 |
| Q531 | D-3 |
| Q633 | E-1 |
| CONNECTORS | |
| CN101A | A-4 |
| CN102A | A-3 |



# LCD Main 1/2 Schematic Diagram

LCD MAIN 1/2

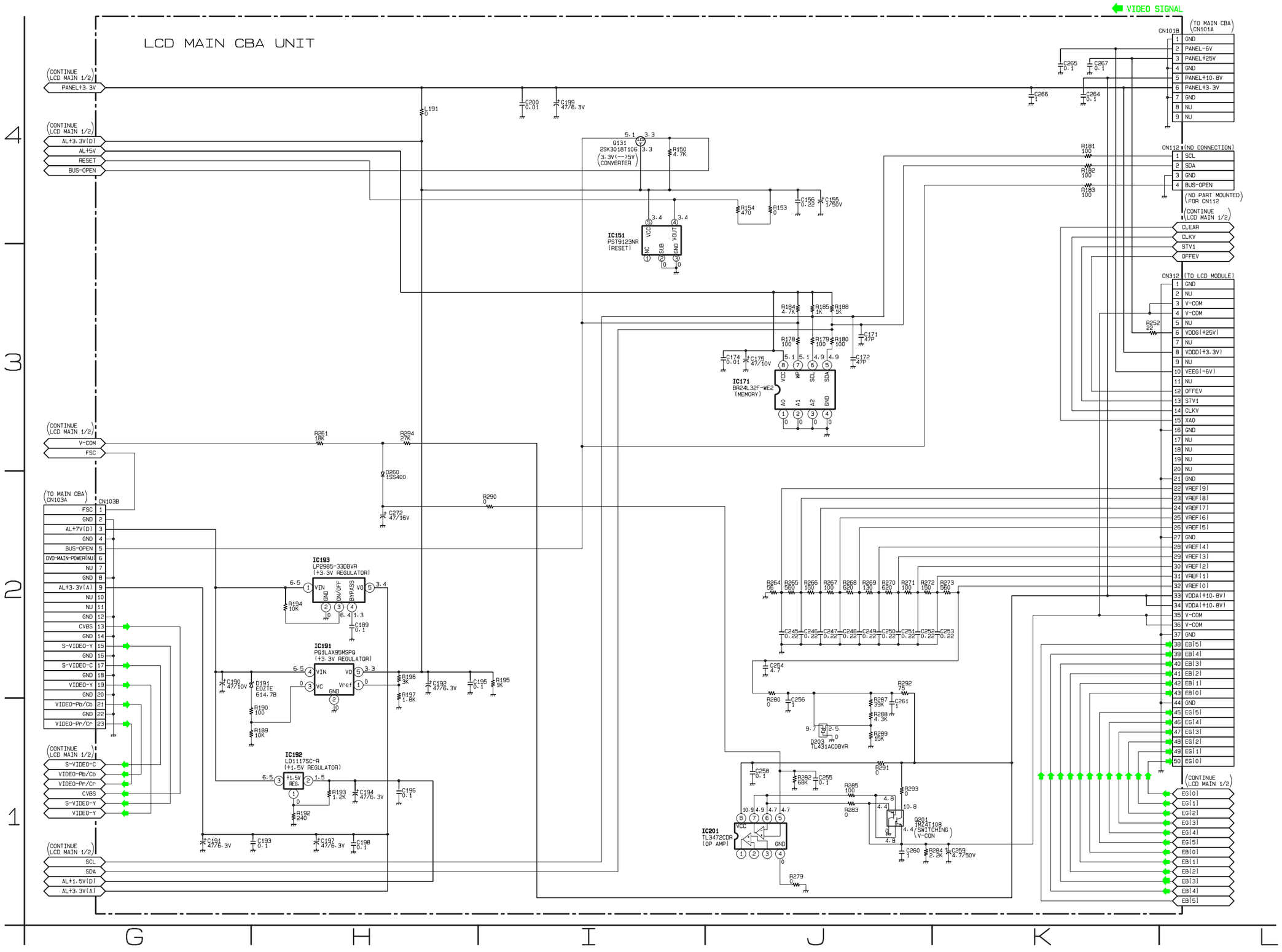
| Ref No. | Position |
|---|---|
| IC | |
| IC333 | B-3 |
| TRANSISTOR | |
| Q301 | D-1 |
| CONNECTORS | |
| CN104 | A-3 |
| CN105 | A-2 |
| CN311 | F-4 |
| CN102B | A-4 |



# LCD Main 2/2 Schematic Diagram

LCD MAIN 2/2

| Ref No. | Position |
|---|---|
| ICS | |
| IC151 | I-3 |
| IC171 | J-3 |
| IC191 | H-2 |
| IC192 | H-1 |
| IC193 | H-2 |
| IC201 | J-1 |
| TRANSISTORS | |
| Q131 | I-4 |
| Q201 | J-1 |
| CONNECTORS | |
| CN312 | L-3 |
| CN101B | L-4 |
| CN103B | G-2 |



# Main CBA Top View

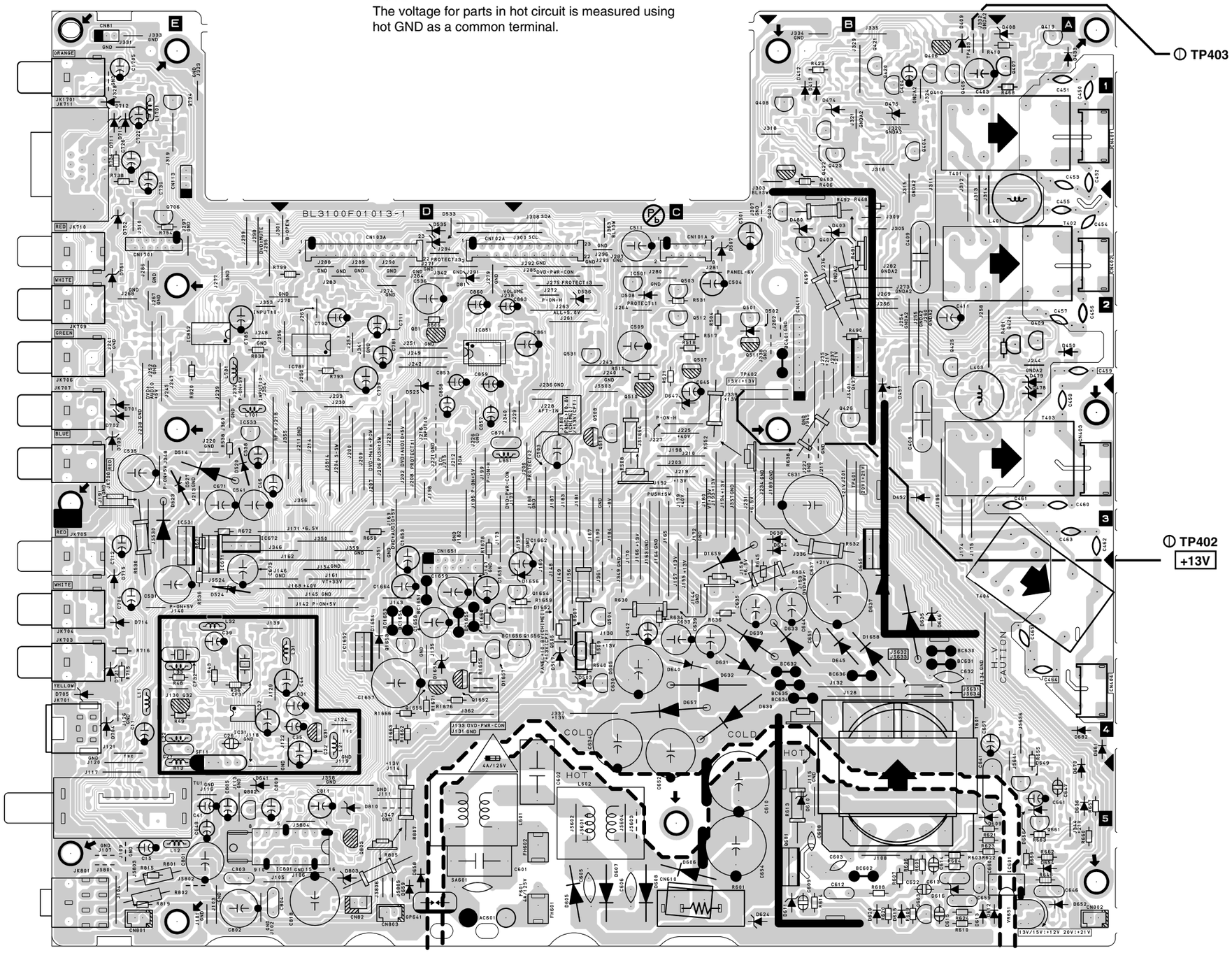
**CAUTION !**
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F601) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

4A/125V

**CAUTION ! :** For continued protection against risk of fire, replace only with same type 4 A, 125V fuse.
**ATTENTION :** Utiliser un fusible de rechange de même type de 4A, 125V.

**Because a hot chassis ground is present in the power supply circuit, an isolation transformer must be used. Also, in order to have the ability to increase the input slowly,when troubleshooting this type power supply circuit, a variable isolation transformer is required.**

**NOTE:**
The voltage for parts in hot circuit is measured using hot GND as a common terminal.



# Main CBA Bottom View

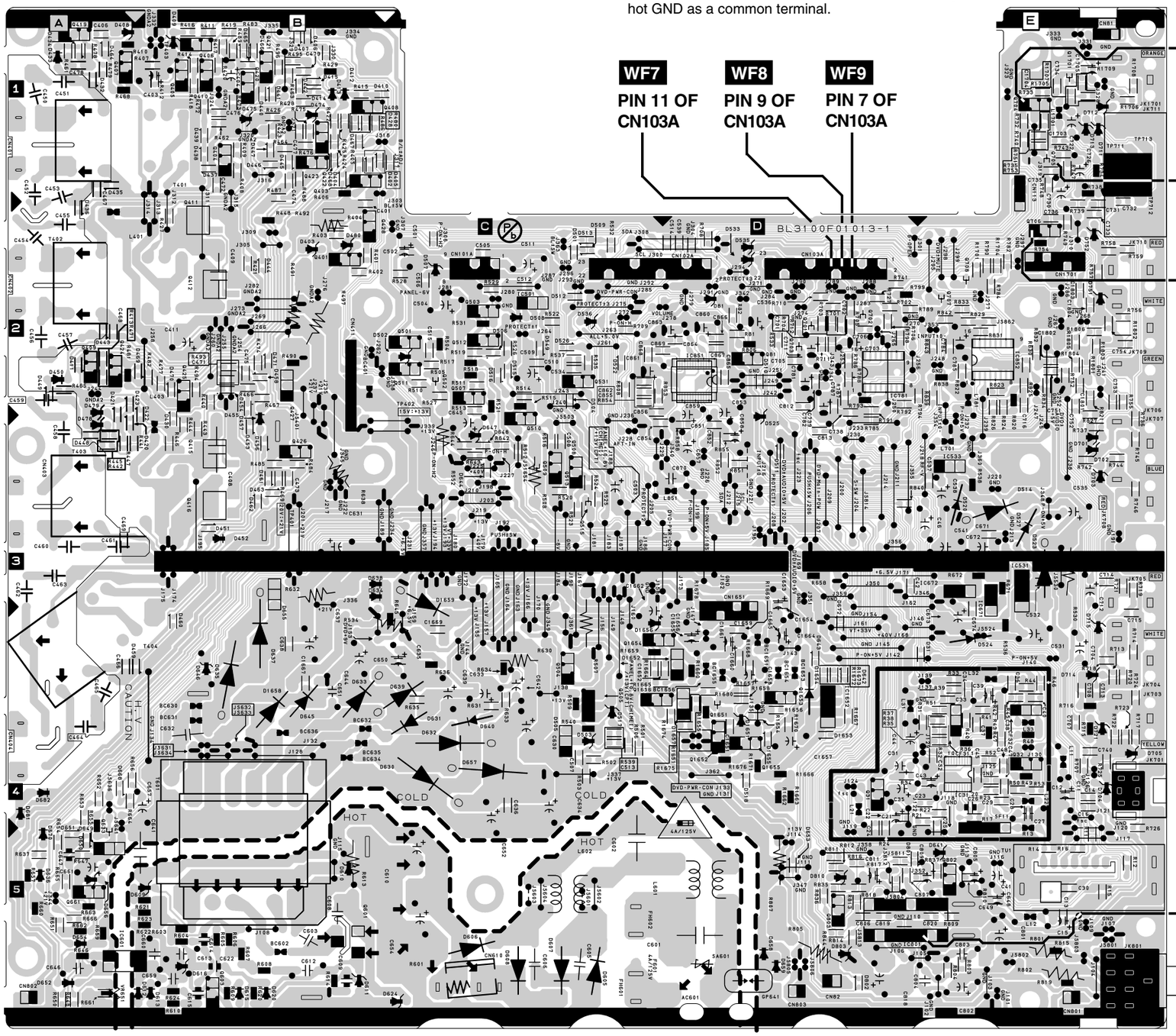
**CAUTION !**
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F601) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

4A/125V

**CAUTION ! :** For continued protection against risk of fire, replace only with same type 4 A, 125V fuse.
**ATTENTION :** Utiliser un fusible de rechange de même type de 4A, 125V.

**Because a hot chassis ground is present in the power supply circuit, an isolation transformer must be used. Also, in order to have the ability to increase the input slowly,when troubleshooting this type power supply circuit, a variable isolation transformer is required.**

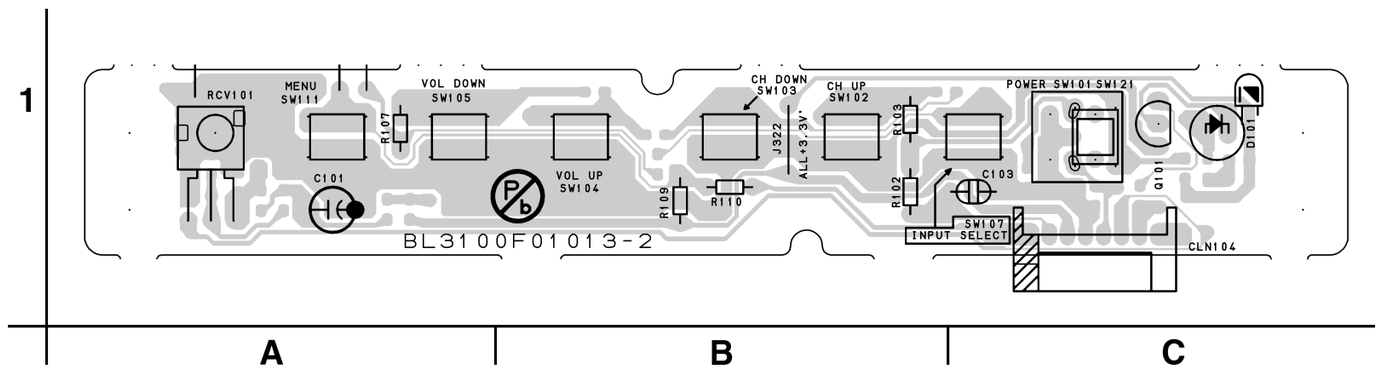
**NOTE:**
The voltage for parts in hot circuit is measured using hot GND as a common terminal.




MAIN CBA

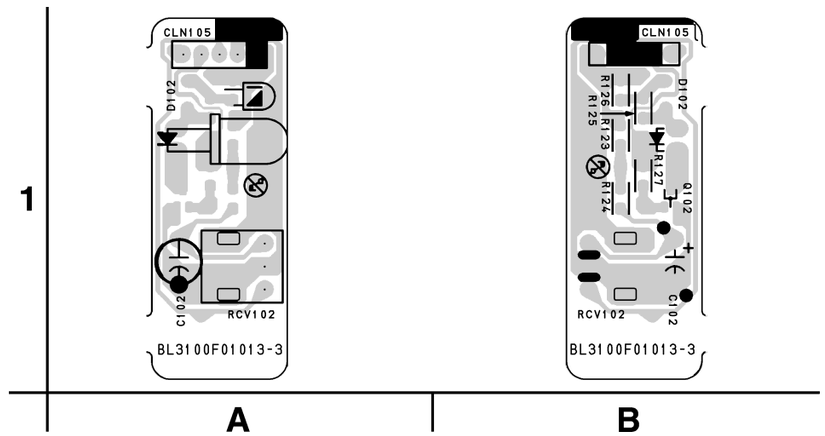
| Ref No. | Position | Ref No. | Position |
|---|---|---|---|
| ICS | | TRANSISTORS | |
| IC31 | E-4 | Q505 | C-4 |
| IC531 | E-3 | Q509 | C-3 |
| IC533 | E-3 | Q510 | C-3 |
| IC601 | A-5 | Q511 | C-2 |
| IC671 | E-4 | Q512 | C-2 |
| IC672 | E-3 | Q513 | C-3 |
| IC781 | D-2 | Q531 | C-2 |
| IC801 | D-5 | Q601 | B-5 |
| IC851 | D-2 | Q603 | B-5 |
| IC852 | E-2 | Q633 | A-5 |
| TRANSISTORS | | Q661 | A-5 |
| Q32 | E-4 | Q701 | D-2 |
| Q401 | B-2 | Q702 | D-2 |
| Q403 | B-1 | Q703 | D-2 |
| Q404 | B-1 | Q704 | E-1 |
| Q405 | B-1 | Q705 | E-1 |
| Q406 | B-1 | Q706 | E-2 |
| Q407 | A-1 | Q707 | E-2 |
| Q408 | B-1 | Q708 | E-2 |
| Q409 | A-2 | Q802 | E-5 |
| Q410 | B-1 | Q803 | D-5 |
| Q411 | B-2 | CONNECTORS | |
| Q412 | B-2 | CN113 | E-1 |
| Q415 | B-3 | CN402 | A-2 |
| Q416 | B-3 | CN403 | A-3 |
| Q421 | B-1 | CN801 | E-5 |
| Q422 | B-1 | CN802 | A-5 |
| Q423 | B-1 | CN101A | C-2 |
| Q424 | A-2 | CN102A | D-2 |
| Q427 | B-2 | CN103A | D-2 |
| Q428 | B-2 | TEST POINT | |
| Q501 | C-2 | TP402 | C-2 |
| Q502 | C-2 | TP403 | B-1 |
| Q503 | C-2 | | |

## Function CBA Top View



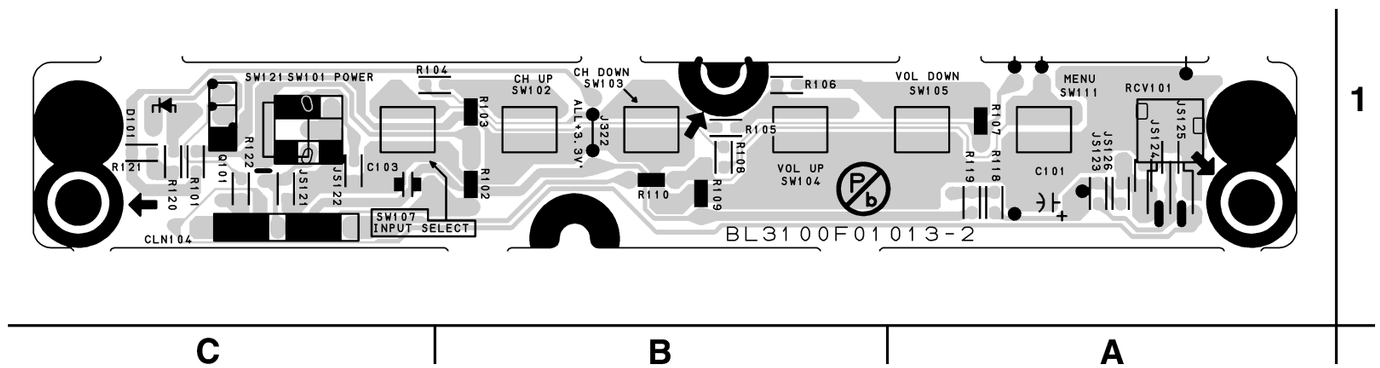

BL3100F01013-2

## IR Sensor CBA Top & Bottom View




BL3100F01013-3

## Function CBA Bottom View




BL3100F01013-2

# Different parts from the previous model

| Ref. No. | Description | Part No. |
|---|---|---|
| **MECHANICAL PARTS** | | |
| A6⚠ | RATING LABEL L3118UJ | ---------- |
| **ELECTRICAL PARTS** | | |
| | LCD MAIN CBA & LIQUID CRYSTAL PANEL UNIT | 1FSA10049 |

6615LF
L3118UJ
2005-09-21